

Ashley M. Simonsen (Bar No. 275203)
COVINGTON & BURLING LLP
1999 Avenue of the Stars
Los Angeles, California 90067
Telephone: (424) 332-4800
Facsimile: (424) 332-4749
Email: asimonsen@cov.com

*Attorneys for Defendants Meta Platforms, Inc.
f/k/a Facebook, Inc.; Facebook Holdings, LLC;
Facebook Operations, LLC; Meta Payments Inc.
f/k/a Facebook Payments Inc.; Meta Platforms
Technologies, LLC f/k/a Facebook Technologies,
LLC; Instagram, LLC; and Siculus LLC f/k/a
Siculus, Inc.*

*[Additional parties and counsel listed on
signature pages]*

UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA
OAKLAND DIVISION

IN RE: SOCIAL MEDIA ADOLESCENT
ADDICTION/PERSONAL INJURY PRODUCTS
LIABILITY LITIGATION

This Document Relates To:

ALL ACTIONS

MDL No. 3047

Case No.: 4:22-md-03047-YGR

**DEFENDANTS' MOTION TO EXCLUDE
GENERAL CAUSATION TESTIMONY OF
PLAINTIFFS' EXPERTS**

Judge: Hon. Yvonne Gonzalez Rogers
Magistrate Judge: Hon. Peter H. Kang

Date: January 26, 2026
Time: 8:00 AM
Place: Courtroom 1, 4th Floor

NOTICE OF MOTION AND MOTION

PLEASE TAKE NOTICE THAT, at 8:00 AM on January 26, 2026, before the Honorable Yvonne Gonzalez Rogers, in Courtroom 1, Floor 4, of the United States District Court, Northern District of California, located at 1301 Clay Street, Oakland, CA 94612, Defendants Meta Platforms, Inc. f/k/a Facebook, Inc.; Instagram, LLC; Facebook Payments, Inc.; Siculus, Inc.; Facebook Operations, LLC; Facebook Technologies, LLC; and Facebook Holdings, LLC (collectively, “Meta” or the “Meta Defendants”); Defendant Snap, Inc. (“Snap”); Defendants ByteDance Ltd.; ByteDance Inc.; TikTok Ltd.; TikTok LLC; and TikTok Inc. (collectively, “TikTok” or the “TikTok Defendants”); and Defendants Google LLC and YouTube LLC (collectively, “YouTube” or the “YouTube Defendants”) (and, together with all Defendants, “Defendants”) will and hereby do move this Court, under Federal Rule of Evidence 702, for an order excluding the Personal Injury/School District Plaintiffs’ experts and Attorneys General’s experts who opine on general causation, including Mr. Arturo Béjar, Dr. Drew Cingel, Dr. Dimitri Christakis, Dr. Gary Goldfield, Dr. Lauren Hale, Dr. Sharon Hoover, Dr. Anna Lembke, Dr. Ramin Mojtabai, Dr. Stuart Murray, Ms. Lotte Rubaek, Dr. Eva Telzer, Dr. Jean Twenge, and Dr. Bradley Zicherman.

This Motion is based on this Notice; the accompanying Memorandum of Points and Authorities; the accompanying Declaration of Ashley M. Simonsen and exhibits thereto, which include the experts’ reports and depositions; any Reply Memorandum or other papers submitted in connection with the Motion; Defendants’ concurrently filed Omnibus Section 230 *Daubert* Motion; any matter of which this Court may properly take judicial notice; and any information presented at argument..

DATED: September 30, 2025

Respectfully submitted,

By: /s/ Ashley M. Simonsen

Ashley M. Simonsen (Bar No. 275203)
 COVINGTON & BURLING LLP
 1999 Avenue of the Stars
 Los Angeles, California 90067
 Telephone: (424) 332-4800
 Facsimile: (424) 332-4749
 Email: asimonsen@cov.com

Phyllis A. Jones (*pro hac vice*)
Paul W. Schmidt (*pro hac vice*)
Christian J. Pistilli (*pro hac vice*)
COVINGTON & BURLING LLP
One City Center
850 Tenth Street, NW
Washington, DC 20001-4956
Telephone: (202) 662-6000
Facsimile: (202) 662-6291
Email: pajones@cov.com
Email: pschmidt@cov.com
Email: cpistilli@cov.com

*Attorneys for Defendants Meta Platforms, Inc.
f/k/a Facebook, Inc.; Facebook Holdings,
LLC; Facebook Operations, LLC; Meta
Payments Inc. f/k/a Facebook Payments Inc.;
Meta Platforms Technologies, LLC f/k/a
Facebook Technologies, LLC; Instagram,
LLC; and Siculus LLC f/k/a Siculus, Inc.*

TABLE OF CONTENTS

TABLE OF CONTENTS	iv
TABLE OF AUTHORITIES	v
I. INTRODUCTION	1
II. BACKGROUND	3
A. Plaintiffs’ General Causation Experts.....	3
B. The Existing Scientific Literature	4
III. LEGAL STANDARD	7
IV. ARGUMENT	7
A. Plaintiffs’ Retained General Causation Experts Who Offer Opinions Against Defendants Should Each Be Excluded Because None Employs the Reliable Methodology Required by Rule 702.....	7
1. Dr. Christakis [PI/SD].....	7
2. Dr. Cingel [PI/SD]	14
3. Dr. Goldfield [PI/SD].....	21
4. Dr. Lembke [PI/SD].....	27
5. Dr. Mojtabai [PI/SD]	35
6. Dr. Murray [PI/SD].....	43
7. Dr. Telzer [PI/SD].....	51
8. Dr. Twenge [PI/SD, AG]	58
9. Dr. Hoover [SD-only]	66
B. Plaintiffs’ Non-Retained Experts Should Not Be Permitted to Offer General Causation Opinions	71
1. Mr. Béjar [PI/SD, AG].....	71
2. Ms. Rubaek [PI/SD, AG]	78
C. The Experts Retained by the Attorneys General to Offer Opinions about Meta Should Each Be Excluded Because None Employs the Reliable Methodology Required by Rule 702.	86

1	1.	Dr. Hale [AG-only]	86
2	2.	Dr. Zicherman [AG-only]	91
3	V.	CONCLUSION	98

TABLE OF AUTHORITIES**Page(s)****Cases**

<i>Abdo v. Fitzsimmons</i> , 2020 WL 4051299 (N.D. Cal. July 20, 2020).....	35
<i>In re Accutane Prods. Liab.</i> , No. 8:04-md-2523-T-30, 2009 WL 2496444 (M.D. Fla. Aug. 11, 2009)	18
<i>In re Acetaminophen – ASD-ADHD Prods. Liab. Litig.</i> , 707 F. Supp. 3d 309 (S.D.N.Y. 2023).....	<i>passim</i>
<i>Allison v. McGhan Med. Corp.</i> , 184 F.3d 1300 (11th Cir. 1999)	32, 95
<i>Annex Books, Inc. v. City of Indianapolis</i> , 581 F.3d 460 (7th Cir. 2009)	39
<i>In re Apple Inc. Sec. Litig.</i> , 2023 WL 4556765 (N.D. Cal. July 17, 2023).....	31
<i>Apple, Inc. v. Samsung Elecs. Co.</i> , 909 F. Supp. 2d 1147 (N.D. Cal. 2012)	58
<i>Archie v. Pop Warner Little Scholars, Inc.</i> , No. 20-55081, 2021 WL 4130082 (9th Cir. Sept. 10, 2021)	83, 84
<i>Barnes v. Yahoo!, Inc.</i> , 570 F.3d 1096 (9th Cir. 2009)	82
<i>In re Bextra & Celebrex Mktg. Sales Pracs. & Prod. Liab. Litig.</i> , 524 F. Supp. 2d 1166 (N.D. Cal. 2007)	49
<i>Bland v. Roberts</i> , 730 F.3d 368 (4th Cir. 2013)	14
<i>Cambridge Lane, LLC v. J-M Mfr’g Co.</i> , No. 2:10-cv-6638, 2025 WL 1843110 (C.D. Cal. Feb. 24, 2025)	45
<i>Casey v. Ohio Med. Prods.</i> , 877 F. Supp. 1380 (N.D. Cal. 1995)	48, 95
<i>City of Huntington v. AmerisourceBergen Drug Corp.</i> , 2021 WL 1320716 (S.D.W. Va. Apr. 8, 2021).....	2, 33, 34, 35
<i>Daubert v. Merrell Dow Pharms., Inc.</i> , 43 F.3d 1311 (9th Cir. 1995)	69, 79, 87, 90

1	<i>Daubert v. Merrell Dow Pharms., Inc.</i> ,	
2	509 U.S. 579 (1993).....	<i>passim</i>
3	<i>Davis v. McKesson Corp.</i> ,	
4	2019 WL 3532179 (D. Ariz. Aug. 2, 2019).....	70
5	<i>DSU Med. Corp. v. JMS Co.</i> ,	
6	296 F. Supp. 2d 1140 (N.D. Cal. 2003)	27
7	<i>Dufour v. BP Expl. & Prod. Inc.</i> ,	
8	No. 19-cv-591, 2023 WL 3807923 (S.D. Miss. June 2, 2023)	41
9	<i>Elosu v. Middlefork Ranch Inc.</i> ,	
10	26 F.4th 1017 (9th Cir. 2022)	7
11	<i>Engilis v. Monsanto Co.</i> ,	
12	___ F.4th ___, 2025 WL 2315898 (9th Cir. Aug. 12, 2025)	<i>passim</i>
13	<i>Erhart v. BofI Holding, Inc.</i> ,	
14	445 F. Supp. 3d 831, 848 (S.D. Cal. 2020).....	2
15	<i>Frischhertz v. SmithKline Beecham Corp.</i> ,	
16	No. 10-cv-2125, 2012 WL 6697124 (E.D. La. Dec. 21, 2012)	40
17	<i>Garner v. BNSF Railway Co.</i> ,	
18	98 Cal. App. 5th 660 (2024)	4
19	<i>Gen. Elec. Co. v. Joiner</i> ,	
20	522 U.S. 136 (1997).....	<i>passim</i>
21	<i>Greenwood Utils. Comm’n v. Miss. Power Co.</i> ,	
22	751 F.2d 1484 (5th Cir. 1985)	81, 93
23	<i>Henricksen v. ConocoPhillips Co.</i> ,	
24	605 F. Supp. 2d 1142 (E.D. Wash. 2009)	69
25	<i>Hollander v. Sandoz Pharms. Corp.</i> ,	
26	289 F.3d 1193 (10th Cir. 2002)	62
27	<i>In re Incretin-Based Therapies Prods. Liab. Litig.</i> ,	
28	524 F. Supp. 3d 1007 (S.D. Cal. 2021).....	46, 48, 49, 61
	<i>Kawasaki Jukogyo Kabushiki Kaisha v. Rorze Corp.</i> ,	
	782 F. Supp. 3d 836 (N.D. Cal. 2025)	26
	<i>Klein v. Meta Platforms, Inc.</i> ,	
	766 F. Supp. 3d 956 (N.D. Cal. 2025)	63
	<i>Kumho Tire Co. v. Carmichael</i> ,	
	526 U.S. 137 (1999).....	<i>passim</i>

1	<i>Leibfried v. Caterpillar, Inc.</i> ,	
2	701 F. Supp. 3d 774 (E.D. Wis. 2023).....	72
3	<i>Malden Transp., Inc. v. Uber Techs. Inc.</i> ,	
4	404 F. Supp. 3d 404 (D. Mass. 2019).....	82, 93
5	<i>McClain v. Metabolife Int'l, Inc.</i> ,	
6	401 F.3d 1233 (11th Cir. 2005)	18
7	<i>In re Methyl Tertiary Butyl Ether (MTBE) Prods. Liab. Litig.</i> ,	
8	593 F. Supp. 2d 549 (S.D.N.Y. 2008).....	39
9	<i>In re Mirena Ius Levonorgestrel-Related Prods. Liab. Litig. (No. II)</i> ,	
10	341 F. Supp. 3d 213 (S.D.N.Y. 2018).....	61
11	<i>Morin v. United States</i> ,	
12	534 F. Supp. 2d 1179 (D. Nev. 2005).....	16, 73
13	<i>Nelson v. Matrixx Initiatives</i> ,	
14	No. C 09-02904 WHA, 2012 WL 3627399 (N.D. Cal. 2012).....	12, 84
15	<i>Neo4j, Inc. v. PureThink, LLC</i> ,	
16	No. 5:18-cv-07182, 2023 WL 7093805 (N.D. Cal. Oct. 25, 2023)	20, 25
17	<i>In re Nexium Esomeprazole</i> ,	
18	662 F. App'x 528 (9th Cir. 2016)	17, 39, 70
19	<i>Ohio State Troopers Ass'n, Inc. v. Point Blank Enters., Inc.</i> ,	
20	No. 18-cv-63130, 2020 WL 1666763 (S.D. Fla. Apr. 3, 2010).....	20, 25
21	<i>Ollier v. Sweetwater Union High Sch. Dist.</i> ,	
22	768 F.3d 843 (9th Cir. 2014)	95
23	<i>Olson v. Montana Rail Link, Inc.</i> ,	
24	227 F.R.D. 550 (D. Mont. 2005).....	56
25	<i>In re Onglyza (Saxagliptin) & Kombiglyze (Saxagliptin & Metformin) Prods. Liab.Litig.</i> ,	
26	93 F.4th 339 (6th Cir. 2024)	34, 58
27	<i>Open Text S.A. v. Box, Inc.</i> ,	
28	2015 WL 349197 (N.D. Cal. Jan. 23, 2015).....	96
	<i>In re Paraquat Prods. Liab. Litig. (Paraquat)</i> ,	
	730 F. Supp. 3d 793 (S.D. Ill. 2024).....	61, 64
	<i>People v. Kinder Morgan Energy Partners, L.P.</i> ,	
	159 F. Supp. 3d 1182 (S.D. Cal. 2016).....	16, 80, 81
	<i>Perry v. Novartis Pharms. Corp.</i> ,	
	564 F. Supp. 2d 452 (E.D. Pa. 2008).....	41

1	<i>Primiano v. Cook,</i>	
2	598 F.3d 558 (9th Cir. 2010)	16, 72
3	<i>Rayzberg v. Cnty. Los Angeles,</i>	
4	2024 WL 3469038 (C.D. Cal. June 28, 2024)	2
5	<i>Rider v. Sandoz Pharms. Corp.,</i>	
6	295 F.3d 1194 (11th Cir. 2002)	62
7	<i>Rosen v. Ciba-Geigy Corp.,</i>	
8	78 F.3d 316 (7th Cir. 1996)	1, 2, 61, 65
9	<i>In re Roundup Prods. Liab. Litig.,</i>	
10	390 F. Supp. 3d 1102 (N.D. Cal. 2018)	4, 39
11	<i>In re Roundup Prods. Liab. Litig.,</i>	
12	737 F. Supp. 3d 898 (N.D. Cal. 2024)	17, 54, 75, 85, 92, 97
13	<i>Sanchez v. Bos. Sci. Corp.,</i>	
14	No. 2:12-CV-05762, 2014 WL 4851989 (S.D. W. Va. Sept. 29, 2014)	54
15	<i>Sanderson v. Int'l Flavors & Fragrances, Inc.,</i>	
16	950 F. Supp. 981 (C.D. Cal. 1996)	<i>passim</i>
17	<i>Saunders v. Consumers Energy Co.,</i>	
18	2022 WL 22883512 (W.D. Mich. Apr. 14, 2022)	35
19	<i>Sheehan v. Daily Racing Form, Inc.,</i>	
20	104 F.3d 940 (7th Cir. 1997)	39
21	<i>In re Soc. Media Adolescent Addiction/Pers. Inj. Prods. Liab. Litig.,</i>	
22	753 F. Supp. 3d 849 (N.D. Cal. 2024)	14, 88
23	<i>In Re Social Media Adolescent Addiction/Personal Injury Prods. Liab. Litig.,</i>	
24	702 F. Supp. 3d 809 (N.D. Cal. 2023)	<i>passim</i>
25	<i>State Farm Fire & Cas. Co. v. Electrolux Home Prods., Inc.,</i>	
26	980 F. Supp. 2d 1031 (N.D. Ind. 2013)	27
27	<i>Tamraz v. Lincoln Elec. Co.,</i>	
28	620 F.3d 665 (6th Cir. 2010)	33
	<i>United States v. 87.98 Acres of Land More or Less in the Cnty. of Merced,</i>	
	530 F.3d 899 (9th Cir. 2008)	86
	<i>United States v. Finley,</i>	
	301 F.3d 1000 (9th Cir. 2002)	13, 80
	<i>United States v. Frazier,</i>	
	387 F.3d 1244 (11th Cir. 2004)	43, 50, 64

1	<i>United States v. Vallejo</i> ,	
2	237 F.3d 1008 (9th Cir. 2001)	26, 74
3	<i>In re Viagra (Sildenafil Citrate) & Cialis (Tadalafil) Prods. Liab. Litig.</i> ,	
4	424 F. Supp. 3d 781 (N.D. Cal. 2020)	<i>passim</i>
5	<i>Wendell v. GlaxoSmithKline LLC</i> ,	
6	858 F.3d 1227 (9th Cir. 2017)	39
7	<i>Williams v. BP Expl. & Prod. Inc.</i> ,	
8	No. 22-cv-278, 2024 WL 340237 (S.D. Miss. Jan. 30, 2024)	41, 63
9	<i>In re Zantac (Ranitidine) Prods. Liab. Litig.</i> ,	
10	644 F. Supp. 3d 1075 (S.D. Fla. 2022)	69
11	Rules	
12	Fed. R. Civ. P. 37	70
13	Fed. R. Civ. P. 26	56
14	Fed. R. Evid. 702	17, 26, 53, 80, 83, 86, 89, 95
15	Fed. R. Evid. 703	26

I. INTRODUCTION

The “[l]aw lags science; it does not lead it.” *Rosen v. Ciba-Geigy Corp.*, 78 F.3d 316, 319 (7th Cir. 1996) (Posner, J.). Plaintiffs ignore this directive, seeking to blame Defendants for various mental health harms despite the lack of scientific consensus that social media (much less any of the at-issue features) causes “social media addiction” or the other psychiatric disorders Plaintiffs allege. In the words of the National Academy of Sciences, “the literature did not support the conclusion that social media causes changes in adolescent health at the population level.” Ex. 1 (National Academies of Sciences, Engineering, & Medicine, *Social Media and Adolescent Health* (2024)) at 5.¹ And the current edition of the authoritative Diagnostic and Statistical Manual of Mental Disorders (DSM-5) does not recognize “social media addiction.” Nevertheless, Plaintiffs’ General Causation (GC) experts proffer opinions that social media has been scientifically proven to cause “social media addiction” and other specified psychiatric disorders. Those opinions are full of methodological failures and do not pass muster under *Daubert*.

As explained in Defendants’ motion to exclude Plaintiffs’ experts based upon the application of Section 230 and the First Amendment (“Omnibus Section 230 *Daubert* Motion”), and as discussed in the expert-specific sections below, Plaintiffs’ experts have not done the work to show that the non-publishing and non-expressive features that remain at issue (after the Court’s dismissal rulings) are independently capable of causing the alleged harms in this case. These experts all rely—either wholly or predominantly—on publishing features that this Court has already held are barred by Section 230 and the First Amendment, and no expert even attempts to disentangle the impact of such protected features in his or her causal analysis.² Even apart from that fundamental flaw, Plaintiffs’ experts have not done the other

¹ All exhibits cited herein are attached to the accompanying Declaration of Ashley M. Simonsen.

² These include: (1) “[u]se of algorithms to promote addictive engagement”; (2) “[n]ot providing a beginning and end to a user’s ‘Feed’”; (3) the “[t]iming and clustering of notifications of third-party content”; (4) “[f]ailing to put [d]efault protective limits to the length and frequency of sessions”; (5) “[f]ailing to institute [b]locks to use during certain times of day”; (6) “[r]ecommending minor accounts to adult strangers”; (7) “[l]imiting content to short-form and ephemeral content, and allowing private content”; (8) “[p]ublishing geolocating information for minors”; (9) “autoplay features”; (10) “quantification and display of likes”; and (11) “service of content according to ‘variable reinforcement schedules.’” PI Order, ECF No. 240, at 15-16; AG Order, ECF No. ECF 1214, at 25–29.

1 necessary work—through the application of a reliable methodology—to show that their opinions are the
2 result of good science, as explained in the Argument section below as to each expert.

3 For example, they resort to a generic label of “mental health harms”—which can cover everything
4 from “FOMO” (fear of missing out) to suicide. The result is a very broad and amorphous description of
5 harm being used by Plaintiff’s experts that is disconnected from the specific mental health disorders
6 Plaintiffs seek to recover for. In addition, they over-extrapolate to conclusions not supported by the data
7 those conclusions rest on. To do so, they cherry-pick across and even within studies to rely on only the
8 snippets of literature that appear to match their conclusions, fail to account for alternative explanations for
9 observed outcomes, and resort to sheer *ipse dixit* to justify their opinions. These are all things the experts
10 would not do in their non-litigation work.

11 Plaintiffs’ experts even try to compensate for the absence of scientific literature by serving as a
12 mouthpiece for Plaintiffs’ view of a skewed selection of internal company documents. *Erhart v. Boff*
13 *Holding, Inc.*, 445 F. Supp .3d 831, 848 (S.D. Cal. 2020) (“Simply rehashing evidence about which an
14 expert has no personal knowledge is impermissible under Rule 702.”) (citation omitted); *see also Rayzberg*
15 *v. Cnty. Los Angeles*, 2024 WL 3469038, at *4 (C.D. Cal. June 28, 2024) (“An expert may not narrate the
16 facts of the case, except insofar as certain facts bear on the expert opinion, since it is ‘inappropriate for
17 experts to become a vehicle for factual narrative.’”). They improperly attempt to use those documents to
18 suggest that Defendants’ had knowledge, awareness, or intent about general causation issues. *See, e.g.,*
19 *City of Huntington v. AmerisourceBergen Drug Corp.*, 2021 WL 1320716, at *4 (S.D.W. Va. Apr. 8,
20 2021) (experts are not permitted to engage in “[l]engthy expert testimony that merely restates factual
21 information found in documents” or “expert testimony regarding defendants’ motive, intent, and/or state
22 of mind”). And the documents they invoke as substitutes for scientific proof consist of emails, business
23 memoranda, marketing, and other communications that use colloquial language—the very type of non-
24 scientific sources that Plaintiffs’ experts admit they would never rely upon in their own academic research.

25 The standards for scientific opinions in the courtroom require more. “[T]he courtroom is not the
26 place for scientific guesswork, even of the inspired sort.” *Rosen*, 78 F.3d at 319. As the Federal Rules
27 Advisory Committee recently reiterated, “[j]udicial gatekeeping is essential because ... jurors may ... lack
28 the specialized knowledge to determine whether the conclusions of an expert go beyond what the expert’s

basis and methodology may reliably support.” Fed. R. Evid. 702 (Fed. R. Evid. 702, 2023 Advisory Committee Notes). That is exactly the risk here. The jury will not be armed with the means to evaluate the substance of the experts’ methodology, and so will presume that otherwise well-qualified experts have done good science here. They have not. All of Plaintiffs’ general causation experts should be excluded.³

II. BACKGROUND

A. Plaintiffs’ General Causation Experts

Plaintiffs put forward 14 experts to prove general causation across the PI/SD cases and the AG cases. This omnibus brief is organized into the following sections that address:

- The 9 general causation experts who offer opinions relevant to all Defendants: Dr. Dimitri Christakis (on behalf of the PI/SD Plaintiffs), Dr. Drew Cingel (PI/SD), Dr. Gary Goldfield (PI/SD), Dr. Anna Lembke (PI/SD), Dr. Ramin Mojtabei (PI/SD), Dr. Stuart Murray (PI/SD), Dr. Eva Telzer (PI/SD), Dr. Jean Twenge (PI/SD, AGs), and Dr. Sharon Hoover (SD-only) (**Section IV.A**),
- The 2 non-retained experts: Mr. Arturo Béjar and Ms. Lotte Rubaek (**Section IV.B**),
- The 2 general causation experts offered by the Attorneys General against only Meta: Dr. Lauren Hale and Dr. Bradley Zicherman (**Section IV.C**).⁴

Although Judge Kuhl’s ruling on Defendants’ *Sargon* motions in that proceeding addresses many of the same expert witnesses at issue here, that ruling is distinguishable for a number of reasons. Judge Kuhl did not address or apply the legal framework that applies here, including because she was not applying federal law. As explained in the Omnibus Section 230 *Daubert* motion, Judge Kuhl had not

³ This omnibus motion provides the basis to exclude all opinions of all of Plaintiffs’ retained general causation experts, except for Dr. Prinstein, who will be addressed separately, *see* Section II.B. Defendants will move separately to exclude the non-general causation opinions of Plaintiffs’ two non-retained experts, Mr. Arturo Béjar and Ms. Lotte Rubaek, as they seek to opine on both general causation and non-general causation topics.

⁴ The 14th expert, Dr. Mitch Prinstein, who was offered by the Attorneys General against only Meta, was deposed on Friday, September 26th, by agreement of the Parties. Because that deposition occurred close in time to when this motion was due, the State AGs and Meta agreed, and the Court so-ordered, that Meta could file a separate 10-page motion as to Dr. Prinstein on October 3, 2025. *See* 4-22-md-03047-YGR (PHK), ECF No. 2256 at 3 n.5 (filed Sept. 12, 2025), so-ordered at ECF No. 2274 (Sept. 23, 2025).

previously held that many of the core features of Defendants’ platforms on which Plaintiffs’ experts rely are protected by Section 230 and the First Amendment, unlike this Court’s rulings.⁵ Judge Kuhl also was not obligated to follow the precedent of this Court or federal *Daubert* caselaw. *See* Ex. 2, Ruling Document on Defendants’ *Sargon* Motions, *Social Media Cases*, JCCP 5255 (Cal. Super Ct. Sept. 22, 2025) at 3–4, 29, 34, 67, 71 (excluding certain witnesses and opinions). Judge Kuhl’s rulings were constrained by her characterization of state court cases like *Garner v. BNSF Railway Co.*, 98 Cal. App. 5th 660 (2024), which found it was error for a state court to exclude general causation expert testimony even where there is an analytical gap between studies and the conclusions based thereon, given the “limited role of the evidentiary gatekeeper.” (Ex. 2 (Ruling Document on Defendants’ *Sargon* Motions) at 5-6.). This explains, at least in part, why Judge Kuhl declined to follow federal cases requiring greater rigor and specificity in the application of Bradford Hill criteria, like *In re Acetaminophen – ASD-ADHD Products Liability Litigation*, 707 F. Supp. 3d 309 (S.D.N.Y. 2023). Ex. 2 (Ruling Document on Defendants’ *Sargon* Motions) at 19, 64–65 (declining to exclude Bradford Hill analyses because Defendants’ argument was based on a federal district court case). Defendants, however, have taken Judge Kuhl’s rulings seriously. In this motion, Defendants have sought to address those concerns that Judge Kuhl raised, while also advancing different arguments where appropriate given the distinct rulings and law in this case.⁶

B. The Existing Scientific Literature

To understand the unreliable leaps of logic Plaintiffs’ experts engage in, it is critical to understand the current state of the scientific literature on this issue, and the analytical gap that remains between the

⁵ Even though Plaintiffs’ claims in the MDL are subject to distinct rulings about which features are at issue, Plaintiffs’ GC experts issued substantively identical opening reports in the JCCP and MDL litigation. As a result, regardless of Judge Kuhl’s view of their methodology in the JCCP, their methodology here is not capable of showing that general causation exists between the *non-protected* design features and Plaintiffs’ alleged harms in this case. *See In re Roundup Prods. Liab. Litig.*, 390 F. Supp. 3d 1102, 1115 (N.D. Cal. 2018), *aff’d sub nom. Hardeman v. Monsanto Co.*, 997 F.3d 941 (9th Cir. 2021) (“An expert ... may be offering a sound scientific opinion, but not an opinion that speaks squarely to the issue the jury must decide.”).

⁶ At the same time, however, Defendants believe that Judge Kuhl’s rulings excluding Ms. Lotte Rubaek from testifying as an expert and limiting Mr. Arturo Béjar’s testimony was correct, on grounds that are equally available to this Court as to each of them.

1 current literature and these experts' opinions.

2 Plaintiffs' case rests on the claim that some teens developed clinical "addiction" to social media
3 and, as a result, other mental health disorders. Although Plaintiffs' experts opine that there is a medical
4 condition called "social media addiction,"⁷ the consensus of the medical community is that no such
5 condition exists. As an initial matter, neither of the two primary diagnostic manuals recognize "social
6 media addiction" as a medical condition. The DSM-5 text revision—"the authoritative guide to the
7 diagnosis of mental disorders for health care professionals around the world"—does not recognize "social
8 media addiction." Ex. 3 (Am. Psych. Ass'n, *From Planning to Publication: Developing DSM-5-TR*
9 (2022)). The same is true for the other lead diagnostic manual that the medical community relies on, the
10 International Classification of Diseases, 11th Edition (the ICD-11), published by the World Health
11 Organization.⁸ Like the DSM, it too does not recognize "social media addiction" as a clinical disorder.
12 Ex. 4 (Tayana Panova & Xavier Carbonell, Behavioral Addictions, Ch. 3: *Social Media Addiction* 75
13 (Springer 2022)) ("[T]he problems related to social media use regarding sleep, school, and/or work for
14 instance, do not constitute clinical-level impairment, whereas 'addiction' is a clinical-level disorder.").
15 Much of the literature on which Plaintiffs' experts rely reinforces this point. *E.g.*, Ex. 5 (Am. Acad.
16 Pediatrics, *Problematic Technology Use* (last updated Oct. 17, 2023) ("While 'addiction' terminology
17 may frequently be used ... it's not an accurate way to describe teens' experiences with social media,"
18 cited in MDL Expert Report of Dimitri Christakis, M.D., M.P.H. ¶ 101); *see also* Ex. 1 at 5 (National
19 Academies of Sciences, Engineering, & Medicine, *Social Media and Adolescent Health* (2024)). Even
20 the U.S. Surgeon General's 2023 Social Media and Youth Mental Health Advisory, upon which Plaintiffs
21 heavily rely, makes clear that "we do not yet have enough evidence to determine if social media is
22 sufficiently safe for children and adolescents," and that "[m]ore research is needed to fully understand
23 the impact of social media[.]" Ex. 7, (U.S. Surgeon Gen., *Social Media and Youth Mental Health*
24

25
26 ⁷ *E.g.*, 4-22-md-03047-YGR (PHK), ECF No. 494, Master Compl., ¶ 19 (filed Dec. 15, 2023) (alleging
27 that Defendants should have "known about the risks of such addiction" and "changed their products to
28 avoid the harm"); *id.* ¶ 61 (similar).

⁸ World Health Org., *ICD-11 for Mortality and Morbidity Statistics* (2025), <https://tinyurl.com/fyxw8vx9>
(last visited Sept. 27, 2025).

1 *Advisory* at 4 (2023), <https://tinyurl.com/s98tfsfe>).

2 Similarly, the relevant studies, of which there are many, do not establish that social media (much
3 less the at-issue features) **causes** the diagnosed disorders Plaintiffs allege for several reasons. As
4 demonstrated in the Omnibus Section 230 *Daubert* Motion, the scientific literature upon which the experts
5 universally rely makes no attempt to isolate the impact of the features at issue in this case from the impact
6 of content and those protected publishing functions covered by this Court’s dismissal rulings. In addition,
7 nearly all of the studies use self-reported symptoms of mental health problems rather than diagnosed
8 conditions, and the studies suffer the admitted challenge that it is impossible to tell, for example, whether
9 reports of conditions like depression precede or follow from increased social media use—i.e., that it is
10 impossible to tell whether the observed effect is one of correlation or causation.⁹ Moreover, these studies
11 have not found the consistent harms that would otherwise be present if Plaintiffs’ legal theory (and
12 experts’ claims) were correct. Instead, at best, the studies have found only weak and inconsistent
13 relationships between use of social media and these symptoms. For example, in terms of depression,
14 “daily social media use is not a strong or consistent risk factor for depressive symptoms.” Ex. 8 (Noah
15 Kreski et al., *Social Media Use and Depressive Symptoms Among United States Adolescents*, 68 J.
16 Adolescent Health 572 (2021)) at 572. This inconclusiveness is not for lack of research. Especially in
17 studies with “larger sample sizes and increased statistical power associated with meta-analysis,”
18 researchers “generally find small and inconsistent effects” between social media use and assessed
19 symptoms. Ex. 1 (National Academies of Sciences, Engineering, & Medicine, *Social Media and*
20 *Adolescent Health* 103 (2024)) at 103.

21 It is against this backdrop that Plaintiffs’ experts seek to opine that social media use causes
22 “addiction” and other specific mental health harms. But, they do not address the general causation

23
24 ⁹See e.g., Ex. 9 at 407 (Amy Orben, *Teenagers, Screens, and Social Media: A Narrative Review of Reviews*
25 *and Key Studies*, 55 Soc. Psychiatry & Psychiatric Epidemiology (2020)) (“[T]he direction of the link
26 between digital technology use and well-being is still unclear: effects have been found to exist in both
27 directions and there has been little work done to rule out potential confounders.”); Ex. 10 at 336 (Candice
28 L. Odgers & Michaelaeline R. Jensen, Annual Research Review: Adolescent Mental Health in the Digital
Age: Facts, Fears, and Future Directions, 61 J. Child Psych. & Psychiatry (2020)) (“The most recent and
rigorous large-scale preregistered studies report small associations between the amount of daily digital
technology usage and adolescents’ well-being that do not offer a way of distinguishing cause from effect
and, as estimated, are unlikely to be of clinical or practical significance.”).

question framed by this Court’s dismissal rulings, and their opinions lack the necessary reliable basis and methodology to satisfy Rule 702.

III. LEGAL STANDARD

“A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if the proponent demonstrates to the court that it is more likely than not that: (a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert’s opinion reflects a reliable application of the principles and methods to the facts of the case.” Fed. R. Evid. 702. “To evaluate reliability, the district court must assess the expert’s reasoning or methodology, using as appropriate criteria such as testability, publication in peer-reviewed literature, known or potential error rate, and general acceptance.” *Elosu v. Middlefork Ranch Inc.*, 26 F.4th 1017, 1024 (9th Cir. 2022) (cleaned up). In addition, expert testimony must be excluded where “there is simply too great an analytical gap between the data and the opinion proffered.” *See Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997).

The recent amendments to Rule 702 reiterated the importance of this gate-keeping function. They “emphasize that proffered expert testimony must meet the admissibility requirements of Rule 702 by a preponderance of the evidence.” *Engilis v. Monsanto Co.*, __ F.4th __, 2025 WL 2315898, at *5 (9th Cir. Aug. 12, 2025) (quotations omitted) (quoting Fed. R. Evid. 702 advisory committee’s note to 2023 amendment). “Before the amendment, many courts had erroneously held that the critical questions of the sufficiency of an expert’s basis, and the application of the expert’s methodology, are questions of weight and not admissibility. The Ninth Circuit recently “confirm[ed] that a proponent of expert testimony must always establish the admissibility criteria of Rule 702 by a preponderance of the evidence and that there is no presumption in favor of admission.” *Id.* at *6.

IV. ARGUMENT

A. Plaintiffs’ Retained General Causation Experts Who Offer Opinions Against Defendants Should Each Be Excluded Because None Employs the Reliable Methodology Required by Rule 702.

1. Dr. Christakis [PI/SD]

Dr. Dimitri Christakis’s opinions that (1) “social media addiction” is “well recognized in the

scientific community and peer-reviewed literature”; and (2) “social media causes or contributes to” several mental health harms, Ex. 6, Expert Report of Dr. Dimitri Christakis (“Christakis Rep.”), ¶¶ 3-16, should be excluded for several reasons. He impermissibly relies on content, *id.* ¶¶ 4, 6-9, 13, 62-88, 97-531; employs an unreliable methodology in violation of Rule 702, *id.*; *see also id.* ¶ 3; and lacks expertise to base some of his opinions on, *id.* ¶¶ 8, 10, 11, 15, 16, 37, 53-61, 64-72, 96, 132-268, 477-530, 559-668.

a) Dr. Christakis’s Opinions Impermissibly Rely on Content and Publishing Activity.

Like Plaintiffs’ other experts, Dr. Christakis does not address the causation question at issue in this litigation: whether the non-publishing features are capable of causing harm independent of third-party content and protected publishing features this Court has already excluded from this litigation. *In Re Social Media Adolescent Addiction/Personal Injury Prods. Liab. Litig.*, 702 F. Supp. 3d 809, 830 (N.D. Cal. 2023) (“PI Order”). Dr. Christakis’s opinions must be excluded because he entirely fails to disentangle harm allegedly attributable to Defendants’ role as such publishers from harm allegedly caused by the narrow set of non-publishing features of Defendants’ platforms that are still at issue in this litigation.¹⁰

By his own admission, Dr. Christakis simply did not make any effort to “separate out [in] any way what the impact of one individual feature is versus other features that you believe also cause harm.” Ex. 12, Transcript of Dr. Dimitri Christakis September 11, 2025 Deposition (“Christakis MDL Dep.”) 93:24–94:20. Indeed, when asked if he had done this, Dr. Christakis admitted that “[t]he vast majority of the studies” he cited “looked at the platforms in their entirety as they existed and not the individual features in them.” *Id.* Instead, Dr. Christakis’s purportedly feature-specific opinions rest almost entirely on “features” for publishing content that this Court has already held are immunized by Section 230, ECF 430, such as “Likes, Comments, and other Metrics,” and “Algorithmic Recommendations.” Ex. 6, Expert Report of Dr. Dimitri Christakis (“Christakis Rep.”) ¶¶182–197. Indeed, Dr. Christakis’s report and testimony repeatedly claimed harm from the very features that this Court has held are barred. *See e.g.*,

¹⁰ Those at-issue features include: not providing effective parental controls, including notification to parents that children are using the platforms; not providing options to users to self-restrict time used on a platform; making it challenging for users to choose to delete their account; not using robust age verification; making it challenging for users to report predator accounts and content to the platform; offering appearance-altering filters; and not labelling filtered content. PI Order at 14-15.

Ex. 6 (Christakis Rep.) ¶¶187-193. *Compare* PI Order at 831 *with* Ex. 12 (Christakis MDL Dep.) 90:2–92:24 (Dr. Christakis agreeing that his claims of harm involve protected features including “algorithms,” “infinite scroll,” “recommending minor accounts to adult strangers,” “short-form videos,” “notifications”).

Moreover, throughout his report, Dr. Christakis relies on the purported impact of content to support his opinions that Defendants’ features, as a whole, cause mental health harms. He states this point expressly as to: (1) Eating Disorders, *see, e.g.*, Ex. 6 (Christakis Rep.) ¶ 308 (claiming Meta documents show that “Beauty, Fitness, and Fashion are the top three contents that trigger negative comparisons for women”); *id.* at ¶ 313 (“Meta implicates its own algorithm in promoting [Negative Appearance Comparison] content. The content is ubiquitous.”); *id.* at ¶ 320 (discussing “‘pro-eating disorder’ content”); *id.* at ¶ 326 (“Internal[] documents reflect a recognition that unconnected content either in ‘image’ or ‘reel’ format on users’ ‘explore’ tab could be problematic for people with eating disorders.”); (2) Suicide and Self-Harm, *see id.* at ¶ 434 (“Let us examine in more depth the causal role that Meta may play in promoting SSI. First, there is the presence of the content itself. Meta’s platform is replete with suicidal content with inadequate protections.”); *id.* at ¶ 483 (“The Bridge et al study detailed before also examined the impact of viewing suicide relevant content to [the] risk of committing suicide.”); (3) Addiction, *see e.g., id.* at ¶ 328 (“This amplification of content and design that pushes the content to vulnerable children is part of the mechanism by which social media simultaneously increases engagement and the risk of harm.”); *id.* at ¶ 669 (“[C]hildren who engage with harmful content...are frequently shown more of it...”); and (4) Sleep Disruption, *see id.* at ¶ 349 (“I would assert that it’s the presentation of content that impairs sleep, as well as addictive features....”); *id.* at ¶ 451 (describing a 1970s horror film purportedly available on YouTube as “[s]ure to shock, horrify and even repulse” and thus “not appropriate for a 13-year-old”). This reliance on content is consistent with Dr. Christakis’ work outside of court, in which he has stated that “content matters as much—or perhaps more—than duration on devices,” Ex. 13, Exhibit 15 to Dr. Dimitri Christakis June 26, 2025 Deposition, E1, and “content drives any observed

effects” of social media use on mental health.¹¹ Ex. 14 (Ex. 35 to Christakis JCCP Dep. Vol. 1), 2277. This reliance on content contravenes Section 230 and precludes his testimony.

Rather than attempting to undertake the work to parse out the alleged impact of any non-barred features, Dr. Christakis dismissed that inquiry as “not a relevant question.” Ex. 12 (Christakis MDL Dep.) 94:15-20. But given the Court’s Section 230 ruling, this inquiry is essential: Dr. Christakis must advance a reliable method (backed by sufficient facts and data) to support his claim that the specific design features at issue in this litigation, and not the “experience” of social media in general, or the content on Defendants’ platforms, or the protected features, cause the harms he asserts. He has not done so. Rather, he conceded that the question of whether any effects of social media use are due to content or to features is “unanswerable.” Ex. 15, Transcript of Dr. Dimitri Christakis June 25-26, 2025 Deposition (“Christakis JCCP Dep.”) 227:16-228:5. That should end the inquiry, and Dr. Christakis’s opinions should be excluded under Rule 702.

b) Dr. Christakis’s Opinions are Based on an Unreliable Methodology Without a Sufficient Factual Basis.

Dr. Christakis’s opinions are independently inadmissible because they result from an unreliable methodology for three reasons. *First*, and most fundamentally, Dr. Christakis cannot bridge the gap between the body of literature he relies on and his opinions about Defendants’ features. *See, e.g., Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997) (“A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.”). The literature he relies on does not conclude that the features at issue cause mental health harms. Rather, Dr. Christakis’s citations either: (1) explicitly examine the impact of content, not features, *see, e.g.,* Ex. 6 (Christakis Rep.) ¶¶ 308, 429, 436; (2) assess

¹¹ Dr. Christakis’s out-of-court advocacy against Section 230 and his stated hopes that this lawsuit will erode Section 230 explain why he has crafted his in-court opinions to evade Section 230. He has called Section 230 a “loophole” and “a huge mistake” that needs to be “rectified.” *See* Ex. 15 (Christakis JCCP Dep.) 467:8-469:25; Ex. 16 (Ex. 21 to Christakis JCCP Dep. Vol. 1) 22-23. He has even advocated for this litigation, specifically, as “the best chance we have to set some guardrails.” *Id.* at 25-26; *see also* Ex. 15 (Christakis JCCP Dep.) 467:11–21. Indeed, he is such an advocate on legal issues that he was set to moderate a panel on “Legislation and Litigation: Approaches to Accountability for Social Media” alongside one of the Plaintiffs’ lawyers one of the plaintiffs’ lawyers who addressed Section 230 at the demurrer hearing in the JCCP, Ex. 15 (Christakis JCCP Dep.) 692:10–19, only to abandon the panel after it was raised at his deposition.

the impact of overall phone or screen time, not Defendants’ at-issue features, *see, e.g.*, Ex. 15 (Christakis JCCP Dep.) 489:11–14, Ex. 6 (Christakis Rep.) ¶¶ 377, 465, 483; (3) include non-defendant platforms that Dr. Christakis admits he knows nothing about, including whether they have any of the features he claims drive the observed outcomes, *see, e.g.*, Ex. 15 (Christakis JCCP Dep.) 583:21–25, 584:2–9, Ex. 6 (Christakis Rep.) ¶¶ 371 n.379, 372 n.381, 546 n.561; and/or (4) assess whether time spent on social media is associated with various outcomes with no effort to assess the causal role of content viewed versus features used, *see, e.g.*, Ex. 15 (Christakis JCCP Dep.) 227:15–228:5, Ex. 6 (Christakis Rep.) ¶ 548 n.585. That body of literature cannot support the opinions Dr. Christakis offers. The only thing connecting those studies to Defendants’ features is Dr. Christakis’s *ipse dixit*.

Compounding the problem, Dr. Christakis knows very little about the very features on which he claims to be an expert. For example, Dr. Christakis could not say how the Instagram autoplay feature works, or even if it “works the same way as the auto play on Netflix or on TikTok.” Ex. 15 (Christakis JCCP Dep.) 476:7–11; 477:23–478:5. He similarly lacks basic knowledge of other important features essential to his causation opinions. *See* Ex. 15, (Christakis JCCP Dep.) 730:23–731:6 (stating that he believes YouTube has infinite scroll but offering only that “If you have a YouTube channel, you—there’s—it will continuously scroll if people are posting on it.”); *id.* at 770:8–14 (stating he does not know “whether [Snapchat likes] are publicly visible or not”); Ex. 15 (Christakis JCCP Dep.) 475:25–476:2 (stating he does not “know if there’s auto play on Snapchat”). Further, Dr. Christakis admits he does not “know how the algorithms vary” among Defendants’ services. *Id.* at 415:12–13.

Dr. Christakis’s Rebuttal Report claims that social media content “is only experienced within the context of features” and cites a “video screenshot” stating that social media companies use harmful features such as “closed portals.” Ex. 17, Dr. Dimitri Christakis Expert Rebuttal Report (“Christakis Rebuttal Rep.”) 12. But Dr. Christakis does not know what a “closed portal” is, and he does not know whether “closed portals” in fact exist on any of the Defendant platforms. Ex. 12 (Christakis MDL Dep.) 74:12–23. This lack of knowledge infects all of Dr. Christakis’s opinions. He confirmed that point in saying that he could not conclude causation as to other online services that had the same features. *See, e.g.*, Ex. 15 (Christakis JCCP Dep.) 51:15–17 (stating he has no opinion on whether Twitter is addictive); *id.* at 397:8–10 (concluding he has never seen addiction to Twitter or Reddit). He cannot reliably claim

that Defendants’ platforms, specifically, cause addiction, while at the same time admitting that he cannot differentiate between Defendants’ platforms and other social media platforms, and has no opinion about whether those other social media platforms cause addiction. *Id.* at 413:12–19 (explaining that he cannot differentiate between Twitter, Reddit, and Defendants’ algorithms). Without basic knowledge of the features that are in fact on Defendants’ platforms, Dr. Christakis’s application of his source material to Defendants’ platforms necessitates reliance “upon assumptions which are not supported by the record,” and his opinions based on these studies “ha[ve] no evidentiary value.” *Nelson v. Matrixx Initiatives*, No. C 09-02904 WHA, 2012 WL 3627399, at *10 (N.D. Cal. 2012) (citation omitted). Simply put, an expert cannot be permitted to offer the opinion that “features” of Defendants’ platforms cause mental health harms when he cannot explain even basic contours of those features, or how they vary across platforms.¹²

Second, Dr. Christakis claims that there is a scientific “consensus” on “social media addiction.” Ex. 6 (Christakis Rep.) ¶ 3, 101. But outside of litigation (just a month before submitting his expert report) Dr. Christakis stated, “whether or not there’s such a phenomenon as digital addiction is still being hotly debated.” Ex. 16, Exhibit 21 to Dr. Dimitri Christakis June 26, 2025 Deposition, 10; Ex. 15 (Christakis JCCP Dep.) 279:20–23. Dr. Christakis relies upon a report from the American Academy of Pediatrics for his “consensus” claim, Ex. 6 (Christakis Rep.) ¶ 101, but that report states, “[w]hile ‘addiction’ terminology may frequently be used ... it’s not an accurate way to describe teens’ experiences with social media.” Ex. 5, Exhibit 23 to Dr. Dimitri Christakis June 26, 2025 Deposition, 1; Ex. 15 (Christakis JCCP Dep.) 289:15–22. Other sources Dr. Christakis cites on for his “consensus” claim do not support it either. *See, e.g.*, Ex. 15 (Christakis JCCP Dep.) 298:10–13 (admitting the National Eating Disorders Website “does not” refer to problematic use or addictive use at all). When confronted with these contradictions,

¹² Dr. Christakis’s opinions as to Snap are specifically unreliable because they fail to account for the specific ways in which users actually use Snapchat. When asked to explain the basics of how Snapchat works, he acknowledged that he could not do so and that he “ha[d]n’t spent time on the — a lot of time on the recent app,” and did not “know the predominant usage of Snap.” JCCP Dep. 767:10–14, 789:5–790:3-24. He did not review or request data showing how much time users spend on different Snapchat features and had no idea that Snap’s data shows Snapchat is used predominantly for messaging. JCCP Dep. 771:13–773:5; *see also* MDL Dep. 204:15-205:13. Dr. Christakis further confirmed that he did not come to any conclusions regarding the addictiveness of the messaging features or perform a separate analysis of such features. JCCP Dep. 775:25–776:11; *see also* MDL Dep. 206:5-24.

1 Dr. Christakis disagrees with his sources. *See, e.g., id.* at 238:6–17. The problem is not merely that some
 2 sources disagree with Dr. Christakis’s opinion, but rather that Dr. Christakis’s cited sources nearly
 3 uniformly contradict his opinion. His opinion that a medical consensus recognizes social media
 4 “addiction” is not supported by sufficient facts or data and should be excluded.

5 *Third*, Dr. Christakis’s opinions on Defendants’ parental controls, safety features, and age gating,
 6 Ex. 6 (Christakis Rep.) ¶¶ 15, 16, and his opinions on company conduct, *Id.* at ¶¶ 8, 10, 11, 15, 16, should
 7 be excluded because his expertise on those subjects does not go “beyond the common knowledge of the
 8 average layman.” *See, e.g., United States v. Finley*, 301 F.3d 1000, 1007 (9th Cir. 2002). Dr. Christakis
 9 concludes that “effective age verification and parental controls are necessary” on Defendants’ services
 10 and “walk[s] through specific prevention steps” that he believes Defendants should have taken. Ex. 6
 11 (Christakis Rep.) ¶¶ 15, 16, 559. But he also admits that “[a]ge verification is not an area...that I have
 12 technical expertise in.” Ex. 15 (Christakis JCCP Dep.) 623:8–9. Though he concludes that safeguards on
 13 Defendants’ platforms are “inadequate” and that Defendants “do very little” to keep users safe, *id.* at
 14 611:5–612:3, he does not know what safeguards Defendants already have in place. *Id.* at 612:14. He has
 15 not “ever conducted research outside of litigation on age verification” or “published a paper on evaluating
 16 parental controls on any kind of app.” *Id.* at 619:13–620:7; 633:23–634:2. Dr. Christakis should not be
 17 allowed to provide first-time expert opinions on these topics.

18 Finally, Dr. Christakis’s testimony on company documents, and his opinions relying on company
 19 documents, should be excluded. Entire sections of his report recite company documents, such as emails
 20 and chats, and company testimony. *See e.g.,* Ex. 6 (Christakis Rep.) ¶¶ 198–268 (Section X, citing
 21 exclusively company documents, testimony, and one public Meta SEC filing), *Id.* at ¶¶ 487–530; 580–
 22 668 (Sections XI.I; XII.P-R, similar). Dr. Christakis’s reliance on company documents constitutes lay
 23 testimony and it should be excluded. Experts “must employ[] in the courtroom the same level of
 24 intellectual rigor that characterizes the practice of an expert in the relevant field.” *Kumho Tire Co. v.*
 25 *Carmichael*, 526 U.S. 137, 152 (1999). Dr. Christakis concedes that “[r]eviewing emails and internal data
 26 would not normally be suitable for scientific publication,” Ex. 15 (Christakis JCCP Dep.), 216:15–17, and
 27 he has never published a review of company emails, chats, slide decks, or similar materials. More
 28 fundamentally, when pressed Dr. Christakis disclaimed reliance on company documents, and claimed that

they were only “confirmatory” of the causation opinions he was willing to reach based solely on the external literature. *See id.* 429:15–17 (“And I want to add that my opinion is not based on these internal documents”), Ex. 16 (Christakis JCCP Dep.) 636:9-15 (“Q. Did you reach any opinions based solely on reviewing company documents? A. No. I – the company documents were used as confirmatory evidence of the literature I reviewed.”). Dr. Christakis should be held to that concession.

2. Dr. Cingel [PI/SD]

Dr. Cingel, a communications professor, similarly purports to offer broad opinions about the alleged effects of platform features on adolescent mental health and asserts that Defendants’ platforms are designed unreasonably. However, he is unqualified to do so and his opinions lack a reliable methodology.

a) Dr. Cingel’s Opinions Impermissibly Rely upon Publication of Third-Party Content.

Dr. Cingel does not, and cannot, offer *any* opinions as to whether the specific at-issue features of Defendants’ platforms—independent of the effects of third-party content and publishing activities granted immunity under Section 230 and the First Amendment—are capable of causing the alleged harms. Instead, Dr. Cingel’s opinions, including his purported feature-specific opinions, ignore this Court’s instructions and expressly target publishing features that this Court has already excluded from this litigation, without providing any methodologically reliable way to distinguish the effects of those publishing features from any effects of the at-issue features here. PI Order at 824, 830–34.

For example, Dr. Cingel opined that algorithms are an allegedly harmful feature, but this Court has ruled that “[u]se of algorithms to promote addictive engagement” is protected by Section 230. PI Order at 830–31. Similarly, Dr. Cingel asserts that “problematic use” arises from users’ psychological responses to likes and comments. *See, e.g.*, Ex. 18, Expert Report of Drew P. Cingel, Ph.D (“Cingel Rep.”) ¶ 71. But this Court has also ruled that because “[t]he aggregation of ‘Likes’ is a content-neutral means of displaying a form of third-party content,” claims on the like feature are barred by Section 230. *In re Soc. Media Adolescent Addiction/Pers. Inj. Prods. Liab. Litig.*, 753 F. Supp. 3d 849, 882 (N.D. Cal. 2024); *cf. Bland v. Roberts*, 730 F.3d 368, 386 (4th Cir. 2013) (“likes” are First Amendment “speech”).

Importantly, Dr. Cingel provides no methodology whatsoever, much less a reliable one, for disentangling actionable features from non-actionable features and content, thus creating serious risk of

jury confusion and of liability being imposed based on protected conduct. Nor can he, because the scientific literature on which he relies fails to distinguish supposed “harms” caused by third-party content from harms supposedly caused by features that publish such content (and fails to distinguish between the features that this Court held can and cannot be a basis for liability). Dr. Cingel conceded in his deposition that he has no way of isolating the effect of content from the effect of features. When asked whether content “contribute[s] to adolescent mental health harms,” Dr. Cingel conceded that he “cannot separate these two things from one another. They’re intricately tied together.” Ex. 19, Transcript of Dr. Drew Cingel July 9, 2025 Deposition (“Cingel JCCP Dep.”) 97:2–7; *see also id.* 104:22–24 (“you cannot separate those two things [content and features] out”).

Dr. Cingel’s prior academic work also illustrates his inability to disentangle (1) the impact allegedly caused by “features” from (2) the impact of content inherently coupled with those features. In a study published in April 2025, Dr. Cingel advised parents that they “should consider *what content their children are consuming* when they watch YouTube, beyond simply controlling the amount of time they spend” (emphasis added). Cingel Ex. 20. In Dr. Cingel’s words, it would be “important [for researchers] to assess when *exposure to certain content*, rather than simply the amount of time spent viewing media, becomes a stronger predictor of developmental correlates.” *Id.* (emphasis added). Yet in his role here as one of Plaintiffs’ retained experts, Dr. Cingel fails to conduct *any* analysis to control for and disentangle the impact of content published by Defendants’ platforms on adolescent mental health, risking prejudicial jury confusion.

b) Dr. Cingel Is Unqualified to Render Expert Opinions on Adolescent Development or Platform Design.

Dr. Cingel is a communications professor, not a psychologist, psychiatrist, neuroscientist, or epidemiologist. Cingel Rep. Ex. 19 (CV). He admits that he has no certifications in adolescent or developmental psychology/psychiatry, no education in neuroscience, does not practice either adolescent psychology or psychiatry, and does not diagnose adolescents with mental or physical conditions—in sum, he has no expertise in developmental susceptibilities, let alone expertise to opine that those susceptibilities cause adolescents to experience harm from social media. Cingel JCCP Dep. 89:24–90:15. Yet he purports to opine, for example, that “unique aspects of adolescent development make adolescents susceptible to

1 negative mental health effects from social media use,” Cingel Rep. ¶ 2, that “defendants’ social media
2 platform designs take advantage of multiple aspects of adolescent development,” *Id.* ¶ 4, that “social
3 media substantially contributes to adverse adolescent mental health,” *Id.* ¶ 7, as well as related opinions
4 on adolescent development and susceptibility (Opinions 1–12). Dr. Cingel lacks “a reliable basis in the
5 knowledge and experience of the relevant discipline” to proffer these opinions and they should not be
6 admitted. *Primiano v. Cook*, 598 F.3d 558, 565 (9th Cir. 2010) (emphasis added) (cleaned up).

7
8 Experts with credentials far closer to the subject matter at hand have been precluded from testifying
9 in similar circumstances. *See Morin v. United States*, 534 F. Supp. 2d 1179, 1185 (D. Nev. 2005), *aff’d*,
10 244 F. App’x 142 (9th Cir. 2007) (holding that even “a licensed physician who has practiced ... for over
11 20 years” did not qualify as an expert to opine on “the causal link between jet fuel and cancer.”). There
12 is no basis to permit Dr. Cingel to offer opinions so far afield from his expertise.

13 Likewise, Dr. Cingel is not qualified to opine on whether Defendants acted reasonably in designing
14 their platforms, or if Defendants have prioritized time spent on the platforms relative to adolescent mental
15 health. Cingel Rep. ¶¶ 13–17 (Opinions 12–16). As explained above, Dr. Cingel is not a software
16 engineer (Cingel JCCP Dep. 59:22–23), is not an expert at evaluating software development processes
17 (*id.* 90:16–18), has no experience with user interface design beyond consulting with a graduate student on
18 creating an app to teach very young children how to count (*id.* 59:24–61:4), and is not an expert in how
19 companies make decisions. He therefore is not qualified to opine on whether Defendants acted reasonably
20 in designing their platforms, or if Defendants have prioritized time spent on the platforms relative to
21 adolescent mental health. Dr. Cingel’s views about Defendants’ platform designs and what Defendants
22 supposedly prioritized were formed without expertise, thus constituting speculation that should not be
23 presented to a jury. *See, e.g., People v. Kinder Morgan Energy Partners, L.P.*, 159 F. Supp. 3d 1182,
24 1199 (S.D. Cal. 2016) (lack of pertinent qualifications rendered expert’s “views, and the assumptions
25 behind them, lay speculation”).
26
27
28

c) **Dr. Cingel’s Opinions Distort the Science, Which Has Not Established that Social Media Use Generally—Let Alone Particular Features—Cause Harm.**

(1) **Dr. Cingel Draws Causal Conclusions from Evidence That Cannot Show Causation.**

Dr. Cingel distorts the studies he cites in support of each of his opinions in order to assert causal relationships between social media use and teen mental health. Disregarding study authors’ own conclusions is a hallmark of an unreliable and inadmissible expert analysis. *See, e.g., In re Nexium Eesomeprazole*, 662 F. App’x 528, 530 (9th Cir. 2016) (affirming exclusion of expert in part because he “did not explain how he came to a different conclusion than the studies’ authors”); *see also Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997) (large “analytical gap[s]” between an expert’s opinion and the actual contents of the literature cited for that proposition support exclusion). In other words, Dr. Cingel’s opinions lack “sufficient facts or data” and they are not “the product of reliable principles and methods.” Fed. R. Evid. 702(b)–(c).

Dr. Cingel repeatedly relies on correlational studies to make *causal* conclusions—even when those conclusions are contradicted by the actual researchers or the studies themselves. The cross-sectional and longitudinal studies that have been conducted about social media use and teen mental health “generally find small and inconsistent effects” (Ex. 21, Sandro Galea et al., *Social Media and Adolescent Health*, NAS, at 103 (2024)), and find (at most) correlation, not causation. As Dr. Cingel concedes, it is a “basic scientific principle that correlation is not the same as causation.” Cingel JCCP Dep. 128:22–25; *see also In re Roundup Prods. Liab. Litig.*, 737 F. Supp. 3d 898, 905 (N.D. Cal. 2024). Yet, Dr. Cingel ignores this tenet in reaching all of his opinions about causation here.

Emblematic is Dr. Cingel’s characterization of a study involving Icelandic adolescents who he described in his report as having “overused multiple social media platforms,” Cingel JCCP Dep. 166:13–168:2. Dr. Cingel described the study as having found that those individuals “were more likely to experience depressive symptoms and panic disorder over the course of the following two years.” *Id.* 166:19–25. But the study’s authors explicitly warned that “it is not known if this relationship is causal” and “the effect size of these relationships suggest they may not be of clinical relevance.” *Id.* 167:23–168:2; *see also id.* 184:7–186:16, 186:18–189:13, 198:8–200:20, 203:4–14, 205:19–208:13 (similar as to

other studies). As noted above, Dr. Cingel’s disregard for the study authors’ own conclusions exposes his unreliable and inadmissible expert analysis. *See, e.g., McClain v. Metabolife Int’l, Inc.*, 401 F.3d 1233, 1248 (11th Cir. 2005) (admitting testimony of expert who drew “unauthorized conclusions from limited data—conclusions the authors of the study do not make” was abuse of discretion); *In re Accutane Prods. Liab.*, No. 8:04-md-2523-T-30, 2009 WL 2496444, at *2 (M.D. Fla. Aug. 11, 2009) (“[W]hen an expert relies on the studies of others, he must not exceed the limitations the authors themselves place on the study.”).

Even worse, faced with the lack of scientific evidence to support his claims, Dr. Cingel offers numerous opinions without citing any published research at all, such as the supposed impact of the design of social media platforms on adolescent development. *See, e.g., Cingel Rep.* ¶ 88 (citing no academic literature to support his opinion that Push Notifications “exploit adolescents’ less developed self-regulation.”). Instead, Dr. Cingel attempts to justify those conclusions by pointing to his “expertise” and his “talking with adolescents.” *See, e.g., Cingel JCCP Dep.* 208:21–209:6, 211:1–5, 329:3–330:19. But “talking with adolescents” is anecdotal at best and cannot form the basis for a reliable expert opinion about what the “totality” of the scientific evidence shows.

(2) Dr. Cingel Impermissibly Extrapolates Research About Specific Platforms to All Defendants.

Dr. Cingel impermissibly lumps all Defendant platforms together in his opinions, rather than differentiating based on the different features and functions of the platforms. *See Sanderson v. Int’l Flavors & Fragrances, Inc.*, 950 F. Supp. 981, 987–88 (C.D. Cal. 1996). Dr. Cingel tried to justify his one-size-fits-all approach in his report by claiming that features are “consistent across Instagram, Facebook, TikTok, Snapchat, and YouTube.” *Cingel Rep.* ¶ 38. During his deposition, however, Dr. Cingel admitted that that is not true: platforms have different feature sets and functionality. *See, e.g., Cingel JCCP Dep.* 240:23–241:1, 241:6–8 (acknowledging YouTube does not allow users to privately message each other, share their locations, or offer ephemeral content); 331:25–332:4 (acknowledging public likes are not a feature across all Defendant platforms); *id.* 341:4–11 (acknowledging Snapchat opens to a camera, not a feed of content). He likewise conceded that he did not consider how platforms are used differently when forming his opinions. *Cingel JCCP Dep.* 315:21–316:10 (acknowledging his

1 opinion that platforms do not require users to identify when they have used photo filters was based on his
2 general belief, not an actual analysis of each platform's features).

3 Dr. Cingel's flawed methodology even relies on studies that included non-Defendant platforms
4 (and their different features), further highlighting his misguided approach. For example, Dr. Cingel relied
5 on studies involving Twitter and LinkedIn use to form the opinions he seeks to offer about Defendants.
6 See Cingel JCCP Dep. 190:3–21, 203:7–15, 205:25–206:5 (relying on studies involving not only
7 Facebook and Instagram, but also Twitter and LinkedIn). Dr. Cingel offered no justification—let alone a
8 reliable one—as to how studies of other platforms are relevant to opinions about Defendants' platforms.

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12 one-size-fits-all approach in his report by claiming that features are “consistent across Instagram,
13 Facebook, TikTok, Snapchat, and YouTube.” Rep. ¶ 38. During his deposition, however, Dr. Cingel
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17 feature across all Defendant platforms); *id.* 341:4–11 (acknowledging Snapchat opens to a camera, not a
18 feed of content). He likewise conceded that he did not consider how platforms are used differently when
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26 Instagram, but also Twitter and LinkedIn). Dr. Cingel offered no justification—let alone a reliable one—
27 as to how studies of other platforms are relevant to opinions about Defendants' platforms.
28

d) Dr. Cingel Impermissibly Regurgitates Company Documents.

Experts are not permitted to serve as a mouthpiece for one party’s narrative by walking through cherry-picked documents at trial. *See Neo4j, Inc. v. PureThink, LLC*, No. 5:18-cv-07182, 2023 WL 7093805, at *7 (N.D. Cal. Oct. 25, 2023) (“experts may not ‘regurgitate information from another source without applying any of his or her own expertise.’”). Yet, like many of Plaintiffs’ experts, this is exactly what Dr. Cingel tries to do. At times Dr. Cingel relies *solely* on internal company documents to support his opinions about specific platform features, even though he could not identify whether any of the documents he relies on to form his opinions were peer reviewed or independently validated by scientists (which they were not).¹³ *See, e.g.*, Cingel Rep. ¶¶ 131–132 (citing only internal Snap documents to support his opinions about ephemeral content and location sharing).

Dr. Cingel conceded that, in his regular work outside of this litigation, he has never relied on company documents. Cingel JCCP Dep. 236:3–10. Moreover, Dr. Cingel admits that he made no effort to investigate the context in which any documents were drafted or used, Cingel JCCP Dep. 238:18–239:8, and that he has never spoken with anyone employed by any Defendant, *id.* 236:17–25. Dr. Cingel knows nothing about company documents beyond what they say on their face.

Any lay person is capable of reading company documents. Plaintiffs should not be permitted to put an expert on the stand to highlight the pieces of evidence they favor. *Ohio State Troopers Ass’n, Inc. v. Point Blank Enters., Inc.*, No. 18-cv-63130, 2020 WL 1666763, at *15 (S.D. Fla. Apr. 3, 2010) (“[I]t is improper for an expert ‘to become a vehicle for factual narrative.’”).

e) Dr. Cingel’s Opinions Rely on Undefined Concepts of “Excessive Use,” “Problematic Use,” and “Addiction,” and Facially Invalid Reasoning.

The unreliability of Dr. Cingel’s opinions is particularly evidenced by his inability to define the amount or type of use that purportedly causes mental health disorders or issues. Dr. Cingel repeatedly referenced “excessive” and “problematic” use, or “addiction,” as the touchstone for causing harm. But Dr. Cingel does not even try to identify what *amount* of social media use supposedly constitutes or causes

¹³ Dr. Cingel relies in his report on one internal Meta document that was later peer-reviewed and published; he relies on the earlier internal version of that document for the proposition that Meta’s “internal studies and analyses ... were not communicated to the public,” Rep. ¶ 173 n.178, but failed to consider the published, publicly available version that was presented at a research conference, Cingel JCCP Dep. 303:22–310:7.

“excessive use,” “problematic use,” or “addiction”—concepts that he relies upon and conflates throughout his report to support all his opinions. He does not and cannot point to any scientific consensus as to what constitutes such use, because there is none. *See, e.g.*, Ex. 22 (Tucker Rep. 8–10); Ex. 23 (Mojtabai JCCP Dep. 511:12–512:2).

Because there is no scientific threshold for what Dr. Cingel claims is harmful social media usage, Dr. Cingel resorts to speculation that *any* amount of use can be “excessive” or “problematic.” Dr. Cingel even goes so far as to insist that one or two minutes a day on social media could constitute harmful usage. Cingel JCCP Dep. 153:15–155:14. Unsurprisingly, Dr. Cingel points to no peer-reviewed evidence in support of that position. Dr. Cingel’s opinions hinge on the assertion that excessive or problematic use of social media is whatever he says it is, rather than a standard set by peer-reviewed studies or generally accepted methodology in the field. That is not science. Courts must exercise their gatekeeping responsibility to exclude these kinds of analyses lacking any meaningful “standards or controls,” let alone general acceptance in the field. *Daubert*, 509 U.S. 579, 593–94 (1993). For this reason and the others set forth above, the Court should exclude the opinions of Dr. Cingel.

3. Dr. Goldfield [PI/SD]

Psychologist Dr. Gary Goldfield should also be precluded from offering unreliable, improper opinions, including opinions regarding Defendants’ “knowledge” that are well beyond his expertise. “““““

Dr. Goldfield opines generally that “social media platforms cause problematic social media use and cause or contribute to cause other mental health harms among children and youth.” Ex. 24, July 30, 2025 Amended Expert Report of Gary Goldfield (“Goldfield Rep.”) ¶ 1.A–E; *see generally id.* Sections 4, 5 (¶¶ 12–350) (Opinion 1). He claims that this opinion is supported both by his “systematic literature review” (*id.* ¶¶ 1.A.i, 69–203) (Analysis A) and “a Bradford Hill analysis of the relevant scientific evidence,” (*id.* ¶¶ 1.A.ii, 311–350) (Analysis B). He also opines that “Defendants knew or should have known” that “children and youth are especially vulnerable to the mental health risks presented by Defendants’ social media platforms” and therefore should have “meaningfully enforce[d] their policies regarding minimum user age.” *Id.* ¶¶ 1.D, 1.F, Section 6 (¶¶ 351–457) (Opinion 2). Despite using internal documents extensively as evidence of Defendant’s knowledge, Dr. Goldfield concedes that he has no experience regarding technology platforms or companies, corporate governance, business operations,

1 internal risk assessment, product development, or age verification. Ex. 25 (Transcript of Dr. Gary
2 Goldfield July 10-11, 2025 Deposition (“Goldfield JCCP Dep.”) 33:4–10, 45:22–46:11, 62:8–63:18,
3 590:20–25.

4 **a) Dr. Goldfield’s Analysis Cannot Rule Out That Any Harms Observed**
5 **Are *Only* Caused by Content or Barred Features.**

6 Dr. Goldfield’s opinions suffer from the same fatal flaw that pervades many of Plaintiffs’ experts’
7 opinions: he assigns causation of psychiatric disorders to Defendants based on an analysis of the scientific
8 literature (and internal company documents) that makes no effort to control for the effects of content or
9 barred features. See Omnibus Section 230 *Daubert* Motion § II.A. In fact, Dr. Goldfield testified that he
10 was not sure as to whether the Defendants’ platforms would still be “addictive” or “contributing to
11 excessive use” in the absence of the barred features. Ex. 26 (Transcript of Dr. Gary Goldfield September
12 10, 2025 Deposition (“Goldfield MDL Dep.”) 692:1-23. Opinion 1 should be excluded.

13 **Content.** Dr. Goldfield offers no reliable basis to opine about how the features of Defendants’
14 platforms—as distinguished from the content on those platforms—can affect users’ mental health. When
15 questioned at his deposition, he admitted that “content matters.” Ex. 25 (Goldfield JCCP Dep.) 390:5,
16 496:14–15. Then he later attempted to take back this admission in his deposition errata, see Ex. 27
17 (Goldfield JCCP Deposition Errata Sheet Day 2) at 2. His report contains entire sections on content about
18 “Fitspiration” and “Thinspiration” (Ex. 24 (Goldfield Rep.) ¶ 227) and paragraphs on “[m]edia exposure”
19 (*id.* ¶ 206). During both depositions, Dr. Goldfield conceded that he “think[s] it’s really difficult to
20 disentangle content from the features. The features generate the content. They’re *inextricable*.” Ex. 25
21 (Goldfield JCCP Dep.) 509:16–19 (emphasis added), 236:5–6 (“it’s really difficult to disentangle content
22 from features”). Plaintiffs incorrectly argue this means *all* the harm caused by this inextricable ball of
23 content and features is fair game for trial. Not so. If the general causation evidence cannot reliably assign
24 harm to *non-immunized* features, it must be excluded. See Omnibus Section 230 *Daubert* Motion § II.A.
25 Dr. Goldfield cannot reliably assign harm to features. And, as he admitted, “there are, to my knowledge,
26 no meta-analyses on disentangling” the impact of content and features. Ex. 25 (Goldfield JCCP Dep.)
27 232:12–14. He therefore cannot “guesstimate the proportion of harm caused by content versus the
28 features,” and that he would “have *no basis* of the opinion” on that issue. *Id.* 252:13–18 (emphasis added).

Barred Features. Dr. Goldfield also readily embraced that his general causation opinions claim harm from features that this Court held were subject to Section 230 or First Amendment protections: algorithms, timed notifications, infinite scroll, geolocation sharing, ephemeral content, and private messaging, each of which inherently relies on third-party content or Defendants’ speech. *Compare* PI Order at 830–31, *with* Ex. 24 (Goldfield Rep.) ¶ 1.B (push notifications, algorithms); *see also* Ex. 26 (Goldfield MDL Dep.) 654:4–24 (algorithms), 664:16–665:2 (infinite scroll and autoplay), 669:22–671:3 (timed notifications for third-party content), 679:3–680:18 (geolocation sharing), 683:21–684:13 (short-form videos), 688:3–17 (private messaging or private content). His opinion that Defendants’ platforms are “addictive” in particular, centered on a series of barred features: algorithms, autoplay, infinite scroll, notifications, geolocation sharing, ephemeral content, short-form content, and likes. Ex. 26 (Goldfield MDL Dep.) 691:8–14. When asked whether there would still be harm without those features, Dr. Goldfield candidly admitted that he did not know, but he would expect it to “be a lot less addictive ... there would be better sleep, better executive control, less anxiety, less depression.” *Id.* 693:17–23. In other words, Dr. Goldfield admits that, in his view, the barred features are responsible for most, if not all, of the alleged harm. Dr. Goldfield simply does not and cannot know whether he would still reach the conclusion that Defendants’ platforms cause harm without the barred features. *See also id.* 683:14–19, 655:11–18, 655:25–656:9 (explaining that the features are all intertwined).

Dr. Goldfield’s general causation opinions should be excluded. Ex. 24 (Goldfield Rep.) ¶ 1.A–E; *see generally id.* Sections 4, 5 (¶¶ 12–350).

b) Dr. Goldfield’s Bradford Hill Analysis Fails to Assess Causation as to any Specific Outcome, Feature, or Platform.

Dr. Goldfield states that he uses a Bradford Hill analysis to arrive at his causation opinions. Ex. 24 (Goldfield Rep.) ¶¶ 311–350. Although Bradford Hill can be used for causal assessments, Dr. Goldfield failed to conduct his analysis in a reliable way: he fails to separately analyze whether the evidence supports a causal claim regarding a specific hypothesis that links each Defendants’ platform to a mechanism of harm (that is not content-dependent), and that then is shown to cause specific psychiatric disorders.

Applying Rule 702, federal courts exclude such opinions when they group together conditions into

a single causation analysis because it creates obvious problems in stating that any one of them is a cause. In *In re Acetaminophen – ASD-ADHD Prods. Liab. Litig.*, 707 F. Supp. 3d 309 (S.D.N.Y. 2023), for example, the court excluded an epidemiology expert’s Bradford Hill analysis for exactly this reason. The expert’s group of “a potpourri of evidence” “obscured limitations in the scientific literature.” *Id.* at 339. Bradford Hill is not designed to group together “multiple associations at once.” *Id.*

Here, Dr. Goldfield commits this precise error: he groups together *multiple* distinct disorders, and worse, throws into that mix different platforms and features. For Dr. Goldfield, “if you have harm on one outcome, you don’t need harm on all outcomes.” Ex. 25 (Goldfield JCCP Dep.) 339:13–342:16 (“Harm, as I defined it, was defined broadly.”), 332:14–16 (“No studies measure problematic use by using the addiction criteria set forth in the DSM.”); *see also* Ex. 24 (Goldfield Rep.) ¶ 204. This “kitchen sink” approach is not reliable.¹⁴ Plaintiffs’ alleged damages in these cases involve psychiatric disorders. *See* Ex. 25 (Goldfield JCCP Dep.) 137:10–13 (noting that “when you’re pooling depression with eating disorders or resilience, well, now you’re comparing apples and oranges and you’re pooling that”) Ex. 26 (Goldfield MDL Dep.) 791:15–20 (admitting “it depends on the diagnosis” when asked if he “would agree that the number of people diagnosed will increase over time”). But in Dr. Goldfield’s haste to offer an opinion that Defendants’ platforms are causally related to *all* disorders, he failed to separately analyze each disorder or harm. Further, Dr. Goldfield analyzed not only disorders, but also non-diagnosed “symptoms,” even though those symptoms may or may not map onto Plaintiffs’ claimed disorders. Ex. 25 (Goldfield JCCP Dep.) 371:20–372:1 (specifying that he analyzed “symptoms” as well as “disorders”); Ex. 26 (Goldfield Rep.) ¶¶ 70–71 (same). Such an imprecise analysis “permit[s] cherry-picking, allow[s] a results-driven analysis, and obscure[s] the complexities, inconsistencies, and weaknesses in the underlying data.” *Acetaminophen*, 707 F. Supp. 3d at 364.

Dr. Goldfield’s Bradford Hill analysis also fails to specifically analyze whether the evidence supports the claim that *each* particular Defendant’s platform—each of which has different forms—can harm users. Again, this is not permissible. As the court in *Sanderson v. International Flavors and Fragrances, Inc.* held, causation evidence needs to be specific to the defendant: “While a jury could

¹⁴ The JCCP Court declined to exclude Dr. Goldfield on this basis, in part, because Defendants’ cited federal (not state) law regarding impermissible transdiagnostic opinions. Federal law requires exclusion.

probably find that defendants' products, *as a whole*, were a substantial factor in causing her injuries, plaintiff has no evidence whatever from which a jury could find that *any particular defendant's products* were." 950 F. Supp. 981, 984 (C.D. Cal. 1996) (excluding experts who were not able to offer any opinions specific to any defendant, only "fragrance products" generally). Dr. Goldfield admits that he did not even attempt to show causation as to each Defendant's platforms because "there is not enough literature to even support that," Ex. 25 (Goldfield JCCP Dep.) 343:22–344:6, and "[m]ost of the studies aggregate social media use" without distinguishing among platforms, Ex. 25 (Goldfield JCCP Dep.). 486:7–9.¹⁵ Social media use "generally" fails to prove that each Defendant's platform is capable of causing the alleged injuries at issue here.

The opinions derived from Analysis B must be excluded. Ex. 24 (Goldfield Rep.) ¶¶ 311–350.

c) Dr. Goldfield Cannot Regurgitate Company Documents in Support of Improper Conclusions Regarding Defendants' Knowledge and Age Verification Systems.

Dr. Goldfield offers improper opinions that are not bolstered by his expertise, but rather a skewed set of Defendants' internal documents. Ex. 24 (Goldfield Rep.) ¶¶ 351–457. His report includes selective citation to internal communications couched in colloquial language and internal studies lacking scientific rigor—sources he is not qualified to present as expert opinion.

First, it is well settled that "experts may not 'regurgitate information from another source without applying any of his or her own expertise.'" *Neo4j, Inc. v. PureThink, LLC*, 2023 WL 7093805, at *7 (N.D. Cal. Oct. 25, 2023) (citation omitted). Further, "it is improper for an expert 'to become a vehicle for factual narrative.'" *Ohio State Troopers Ass'n, Inc. v. Point Blank Enters., Inc.*, 2020 WL 1666763, at *15 (S.D. Fla. Apr. 3, 2020) (citation omitted). Yet, Dr. Goldfield did exactly this.

Dr. Goldfield's report includes an entire section titled "Defendants' Internal Knowledge" that reads like Plaintiffs' complaint. Ex. 24 (Goldfield Rep.) ¶¶ 351–457. Defendants tried to press how and why Dr. Goldfield selected these documents in deposition, but Plaintiffs' counsel asserted privilege over

¹⁵ Dr. Goldfield also lacks even a basic understanding of the use and function of Defendants' platforms. For example, Dr. Goldfield is not aware how much time users actually spend messaging with their friends on Snapchat as opposed to using other functions; and Dr. Goldfield is entirely unfamiliar with how YouTube notifications are delivered or the process that YouTube employs to verify the age of its users. Ex. 25 (Goldfield JCCP Dep.) 446:18–25; 530:9–532; 541:24–544:21.

any further discussion regarding the basis for Dr. Goldfield’s method for selecting documents. Ex. 25 (Goldfield JCCP Dep.) 578:8–580:7. His lack of a reliable, scientific methodology is obvious. His materials considered list includes a Danish-language presentation, when he is not able to read Danish, *id.* 580:8–583:13, and a hyperlink referencing the computer of an individual who “works at Wagstaff & Cartmell” (a law firm for Plaintiffs), *id.* 578:22–579:18. This all suggests that Plaintiffs’ counsel (not Dr. Goldfield) identified the internal company documents, and are using Dr. Goldfield as a vehicle to present them to the jury.

Second, the “Defendants’ Internal Knowledge” conclusions that Dr. Goldfield reaches based on company documents are improper. Federal courts “routinely exclude expert testimony as to intent, motive, or state of mind as issues better left to a jury.” *Kawasaki Jukogyo Kabushiki Kaisha v. Rorze Corp.*, 782 F. Supp. 3d 836, 855–56 (N.D. Cal. 2025) (collecting cases). For that reason, the JCCP court precluded Dr. Goldfield from offering any opinions regarding what Defendants allegedly knew or did not know. Ex. 2, JCCP Order (Sept. 22, 2025) at 21–22.

Third, Dr. Goldfield also concedes that he has no experience to opine on Defendants’ age verification systems or to opine that “Defendants fail to meaningfully enforce their policies regarding minimum user age.” Ex. 24 (Goldfield Rep.) ¶ 1. He concedes that he does not “hold [himself] out as an expert on age verification” and that he has never published any papers on this topic. Ex. 25 (Goldfield JCCP Dep.) 590:20–25. These concessions establish that Dr. Goldfield has no “scientific, technical, or other specialized knowledge” that could assist the trier of fact on these judgments; and that the internal documents underlying these opinions are not evidence that “experts in the particular field would reasonably rely on ... in forming an opinion on the subject” in his area. Fed. R. Evid. 702–703. A witness may not testify as an expert unless he or she testifies about matters that are beyond the ability and experience of the average layperson. *See United States v. Vallejo*, 237 F.3d 1008, 1019 (9th Cir. 2001) (explaining that expert testimony must also “address an issue beyond the common knowledge of the average layman”), *amended on denial of reh’g by*, 246 F.3d 1150 (9th Cir. 2001).

Accordingly, Dr. Goldfield should not be able to regurgitate company documents at trial, and his lay testimony regarding whether Defendants “knew or should have known” about the alleged risks of their platforms and regarding age verification systems are inadmissible. Ex. 24 (Goldfield Rep.) ¶¶ 351–457.

d) **Dr. Goldfield’s Conclusion That Social Media Use Causes Poor Academic Performance Is Not Based on Any Reliable Scientific Literature.**

Dr. Goldfield’s methodology for his academic performance opinions (Ex. 24 (Goldfield Rep.) ¶¶ 159–162) reveal an unbridgeable “analytical gap between the data used and the opinion offered.” *DSU Med. Corp. v. JMS Co.*, 296 F. Supp. 2d 1140, 1158 (N.D. Cal. 2003). Specifically, Dr. Goldfield based his opinion that social media negatively impacts academic performance on two meta-analyses: one published by Metin Kus and the other by Nader Salari.¹⁶ Ex. 25 (Goldfield JCCP Dep.) 349:6–23.

At deposition, Dr. Goldfield admitted that the Metin Kus meta-analysis undercuts his opinion. That study found “the effect of social media use on” academic performance was “*weakly positive*, though not statistically significant.” *Id.* 353:10–354:12 (emphasis added). Put differently, one of two studies he relied on to argue social media causes *negative* academic performance failed to reflect any statistically significant relationship, and the effect it did observe was *positive* academic performance—completely contrary to his opinion.

The second meta-analysis he relies upon, by Salari et al., relied *entirely* on correlational studies, which he conceded cannot show causation. *Id.* 356:11–357:13, 155:24–156:23. Moreover, the studies included focused exclusively on populations of college students, and all but one were from college students in Kuwait, Qatar, India, China, Malaysia, Iran, Turkey, Bangladesh, Nigeria, and Pakistan. *Id.* 357:18–25. Dr. Goldfield provides no basis for the position that college students from Asia and the Middle East somehow are proper surrogates for American middle- and high-school students. *See State Farm Fire & Cas. Co. v. Electrolux Home Prods., Inc.*, 980 F. Supp. 2d 1031, 1049 (N.D. Ind. 2013) (“When conducting a comparative analysis, to meet the reliability that *Daubert* demands, an expert must ‘select samples that are truly comparable.’” (citation omitted)).

The academic performance opinions also must be excluded. Ex. 24 (Goldfield Rep.) ¶¶ 159–162.

4. Dr. Lembke [PI/SD]

Dr. Lembke’s opinions should be excluded under Rule 702 in their entirety because they run afoul

¹⁶ Ex. 28 (Kus, *A Meta Analysis of the Impact of Technology* (2025)); Ex. 29 (Salari, *The Impact of Social Networking* (2025)).

1 of this Court’s Section 230 rulings, rest on a broad and unproven conception of “addiction,” extrapolate
 2 from internal company documents without any basis, and speculate about warnings Defendants should
 3 have given without any methodology.

4 Dr. Lembke, M.D., is a professor of psychiatry at Stanford University and Chief of the Stanford
 5 Addiction Medicine Dual Diagnosis Clinic. Ex. 30 (Dr. Lembke’s May 16, 2025 Expert Report (“Lembke
 6 Rep.”)), at 1 (¶(B)(1)). Dr. Lembke seeks to opine that clinical addiction covers all types of “behavior[s]”
 7 (Opinion 1), that “social media addiction has been accepted and validated as a psychiatric condition”
 8 (Opinion 2), that social media’s “social rewards[] lead[] to “brain and behavioral changes consistent with
 9 addiction” (Opinion 3), that Defendants’ internal company documents “provide evidence that their
 10 [platforms] are addictive” (Opinion 4), and that social media “addiction” “can adversely affect youth
 11 mental health” (Opinion 5). Ex. 30, Lembke Rep. 1 (¶A(1)-(5)). These claims are based on an unvalidated
 12 and all-encompassing theory of addiction and lack a reliable methodology.

13 Dr. Lembke claims that the mechanism of addiction is the release of dopamine in the brain, and
 14 that dopamine can be “used to measure the addictive potential of any behavior or drug.” Ex. 31 (June 18,
 15 2025 Lembke Dep.) at 139:10–21. She opines that pleasurable or reinforcing “behaviors temporarily
 16 increase dopamine firing in the brain’s reward pathway,” and, with repetition of that “behavior,”
 17 individuals “can enter a chronic dopamine deficit state, wherein the threshold for experiencing pleasure
 18 goes up, and the threshold for experiencing pain goes down.” Ex. 30, Lembke Rep. 12 (¶3(a)(ii)). This
 19 is “addiction.” But she admits that dopamine is released whenever one experiences anything “pleasurable
 20 or reinforcing,” Ex. 31 (June 18, 2025 Lembke Dep.), 137:11–19 & 138:18–139:7, and Dr. Lembke agrees
 21 that practically any activity can potentially trigger this cycle, from listening to classical music to playing
 22 with a pet, *id.* at 137:15–138:7.

23 Unlike the JCCP, Dr. Lembke issued a new, one-sentence rebuttal opinion in the MDL:
 24 “Defendants should warn youth consumers and their parents about the risks, which include but are not
 25 limited to addiction, depression, and suicidal ideation.” Ex. 32 (Dr. Lembke’s July 30, 2025 Expert
 26 Rebuttal Report (“Lembke Rebuttal Rep.”)), 22 (Opinion 4(n)).
 27
 28

a) **Dr. Lembke’s Opinions 1-5 Must Be Excluded Because They Are Inextricably Bound Up With The Impact Of Features And Content This Court Ruled Were Protected.**

Dr. Lembke does not and cannot give a causation opinion that accounts for the boundaries set by the Court’s dismissal rulings, Section 230, and the First Amendment. Dr. Lembke admitted that she read this Court’s Section 230 rulings, Ex. 33 (August 27, 2025 Lembke Dep.), at 126:18–127:8, yet chose not to exclude the protected features from her causal analysis, *id.* at 127:21–24 (“Q. Whether a feature may be immunized by Section 230 did not play a factor in opinion 4 of your MDL opening report? A. It did not play a factor, no.”). Instead, Dr. Lembke’s causation opinions rest entirely on a “**totality of the features**” analysis that lumps together protected features and any remaining at-issue features. *Id.* at 58:13–25 (grouping all features together in her “categories” of what “makes something addictive”— “access, quantity, potency, novelty, and uncertainty”).

As set forth in the chart below, Dr. Lembke’s causal opinions expressly rely upon—indeed, **require**—the very features that this Court ruled were protected by Section 230 and the First Amendment:

Protected Features	Examples of Dr. Lembke’s “Totality” Analysis
“Failing to put default protective limits to the length and frequency of sessions,” PI MTD Order, ECF No. 430, at 16.	Ex. 30, Lembke Rep. 5 (¶ a) (opining “unlimited access” increases risk of addiction), 17 (¶ i) (“Defendants have made it easy for kids and teens to access their social media products with few or no guardrails”), 44 (¶ E–H) (criticizing Instagram’s daily usage limits, Take a Break or Quiet Mode for being opt-in features), and 78 (¶ 5 (“limiting social media use can improve youth mental health”). <i>See also</i> Ex. 33 (August 27, 2025 Lembke Dep.), at 133:24–134:5 (failure to place limits on length and frequency of session are “example[s] of something that might be a guardrail if it were actually the default and mandatory and enforced and not easily opted out of”).
“Failing to institute blocks to use during certain times of day (such as during school	<i>See</i> row above. <i>See also</i> Ex. 30, Lembke Rep. 71 (¶¶ E–F) (discussing excessive nighttime usage on TikTok as evidence of “out of control use” that contributes to addiction). <i>See also</i> Ex. 33 (August 27, 2025 Lembke Dep.), at 133:16–23 (stating that “the failure of the platform to put limits on

hours or late at night),” PI MTD Order, ECF No. 430, at 16.	what time of day an adolescent could access the platform” is “an example of how the 24/7 access contributes to the harm”).
“Not providing a beginning and end to a user’s Feed,” PI MTD Order, ECF No. 430, at 16.	Ex. 30, Lembke Rep. 17–18 (ii) (“Defendants’ social media products are inherently designed to maximize quantity through design features like <i>endless scroll/infinite scroll</i> ”), 25 (¶ A) (same re: Meta), 46 (¶ A) (same re: SnapChat); at 66 (¶ A) (same re: TikTok). <i>See also</i> Ex. 33 (August 27, 2025 Lembke Dep.), at 134:8–15 (endless scroll and infinite scroll are “both referring to when there’s no end to the content that a user sees in their feed”).
“Limiting content to short-form,” PI MTD Order, ECF No. 430, at 16.	Ex. 30, Lembke Rep. 58–59 (¶ E) (analyzing “potency” of YouTube Shorts); 37 (¶ C) (same re: Instagram Reels); 70 (¶ B) (same re: TikTok). <i>See also</i> Ex. 33 (August 27, 2025 Lembke Dep.), at 142:16–20 (opining short-form videos increasing potency).
“Timing and clustering of notifications” of Defendant or third-party content, PI MTD Order, ECF No. 430, at 16 & 22.	Ex. 30, Lembke Rep. 18 (¶ iv) (“Through features like <i>notifications</i> , Defendants’... promote ongoing engagement or re-engagement”). Ex. 33 (August 27, 2025 Lembke Dep.), at 138:4–11 (agreeing “the timing and the clustering of when those notifications are pushed out [] contribute to the addictive design feature”).
“Use of algorithms to promote addictive engagement” PI MTD Order, ECF No. 430, at 16.	Ex. 30, Lembke Rep. 29 (¶ A) (“Meta’s social media algorithm provides just enough uncertainty ... to encourage ongoing engagement in the hope of future reward”); 67 (¶ C) (“The TikTok’s algorithm optimizes for ongoing engagement”), 47 (¶ B) (same re: SnapChat); 59 (¶ C) (same re: YouTube). <i>See also</i> Ex. 33 (August 27, 2025 Lembke Dep.), at 138:12–23.
“Limiting content to ... ephemeral content,” PI MTD Order, ECF No. 430, at 16.	Ex. 30, Lembke Rep. 19 (¶ v) (“Defendants’ social media products create uncertain rewards through ... ephemeral content ... thereby gamblifying social media and contributing to the increased risk of social media addiction.”). <i>See also</i> Ex. 33 (August 27, 2025 Lembke Dep.), at 141:14–

	142:8 (“[t]he ephemeral content ... there’s a kind of a gamification or gamblification”).
“Auto-play,” PI MTD Order, ECF No. 430, at 16 n. 16	Ex. 30, Lembke Rep. 17 (ii) (“Defendants’ social media products are inherently designed to maximize quantity through design features like ... <i>autoplay</i> ”), 25 (¶ A) (Meta), 46 (¶ B) (SnapChat), 66 (¶ A) (TikTok).
“quantification and display of likes” AG MTD Order, ECF No. 1214, at 31	Ex. 30, Lembke Rep. 18 (¶ iii) (“Defendants’ social media exploit the inherently rewarding human need for social reciprocity, social validation, and group affiliation through a rapid feedback loop of <i>posts, likes, shares, and comments</i> , enumerated at scale.”)
“awards,” PI MTD Order, ECF No. 430, at 22	Ex. 30, Lembke Rep. 49–50 (analyzing SnapChat’s streak feature); 58 (¶ B–C) (describing YouTube’s reward “potency”).

Without these features, it is unclear what, if any, non-protected “features” remain. But what is clear is that Dr. Lembke did not analyze whether any platform would still be addictive and unsafe if all of these protected features were removed from her analysis. She admittedly did *not* isolate the causal effects of each feature. Ex. 33 (August 27, 2025 Lembke Dep.), 143:14–21 (“Q: And you haven’t gone through the exercise in your report of [‘]would this platform still be addicted and unsafe if I removed one feature?[]’ You haven’t done that exercise, right? A: I haven’t ...”). As Dr. Lembke put it, “I looked at them in aggregate.” *Id.* at 155: 21–23; *see also id.* at 142:25–143:3 (testifying that she “really hasn’t given thought” to whether one feature alone, without others, could cause addiction). As a result, Dr. Lembke has no methodology capable of giving a reliable and relevant opinion on any general causation issue. *In re Apple Inc. Sec. Litig.*, 2023 WL 4556765, at *9 (N.D. Cal. July 17, 2023) (excluding opinion based on inaccurate “description of plaintiff’s theory” because it “offers no helpful guidance and is likely to confuse the jury”).

In addition to failing to analyze the impact of the non-protected features at issue in this litigation, Dr. Lembke made clear that the publication of actual third-party content—the heart of what Section 230 protects—drives other mental health harms that she purports to attribute to social media. Take eating

disorders. When asked how social media can lead to an eating disorder, Dr. Lembke testified that social media can cause anorexia because it optimizes “for time spent and also push increasingly potent images to the consumer”—namely, “anorexia-related content.” Ex. 31 (June 18, 2025 Lembke Dep.), 225:16–24. Dr. Lembke further concedes she is not aware of *any* studies demonstrating that social media features, independent of content, can lead to anorexia. *Id.* at 230:11–19; *see also id.* at 232:18–233:2 (same with respect to suicidality). Because Dr. Lembke’s general causation opinions explicitly rely on features and publishing activity that the Court previously ruled as protected, and because she never evaluated whether any alleged harm could occur without those features, Dr. Lembke lacks a reliable methodology.

b) Dr. Lembke’s Opinions (#1-5) That Social Media Can Lead To Addiction Is Unreliable Because It Is Untethered To Underlying Science or Medicine.

Dr. Lembke’s “addiction” opinions (Opinions 1-5) also should be excluded as unreliable because: (1) there is no diagnostically reliable definition for “social media addiction”; and (2) her view of “addiction” is divorced from science and has not been tested.

First, Dr. Lembke’s replaces science with her say-so. Dr. Lembke borrows aspects of the DSM-5’s definition of “substance use disorder” for her definition of “social media addiction,” Ex. 31 (June 18, 2025 Lembke Dep.), 205:1–205:9, yet admits that neither the DSM-5 nor the ICD-11 recognizes any variant of “social media addiction,” *id.* at 170:17–20 & 178:21–179:2. Dr. Lembke has further acknowledged that there is no standard definition of social media “addiction” throughout the medical literature: it sometimes uses the term “addiction,” sometimes refers to “problematic social media use,” and sometimes refers to “risky [social media] use.” *Id.* at 222:10–21. This does not matter according to Dr. Lembke, because “[w]hether you call it one thing or another, use these four criteria or two of those criteria and two others, there’s a point at which the overall gestalt is the same and you’re capturing that pattern of behavior, which is clearly recognizable as an addictive pattern.” *Id.* at 221:9–24 (emphasis added). But diagnostic criteria are not an “overall gestalt”; they are specific criteria that ensure the disorder is accepted and scientifically proven. No such accepted diagnostic criteria exist here.

Second, Dr. Lembke’s underlying theory of addiction is not supported by the scientific community, rendering it inadmissible under Rule 702. *Allison v. McGhan Med. Corp.*, 184 F.3d 1300, 1321 (11th Cir.

1999) (affirming exclusion of expert testimony “[b]ecause the untested theories of Allison’s experts are not generally accepted in the scientific community”). Dr. Lembke claims that nearly *anything* can potentially be addictive so long as what she refers to as the “4 Cs” (control, compulsion, craving, and consequences), plus tolerance and withdrawal, are present. Ex. 31 (June 18, 2025 Lembke Dep.), 203:2–17. This is not an exaggeration. For example, Dr. Lembke has repeatedly pointed to her own “mild addiction to erotica.” *Id.* at 84:5–13; *see also id.* at 78:13–15. She claims that romance novels were “designed to hook” her, the very same allegations she now levels against social media companies. *Id.* at 81:18–82:11; *see also id.* at 84:23–85:1. She also acknowledges the possibility under her theory that someone can get addicted to American Idol outtakes or listening to rap music. *Id.* at 88:1–4, 86:13–19. Contrary to the JCCP ruling, no science recognizes such an all-encompassing definition of “addiction.”

In fact, this definition rests upon an unsupported and untested hypothesis. *See Tamraz v. Lincoln Elec. Co.*, 620 F.3d 665, 677 (6th Cir. 2010) (“what science treats as a useful but untested hypothesis the law should generally treat as inadmissible speculation.”). Dr. Lembke testified that her concept of “social media addiction” is premised on the hypothesis that social media use increases greater dopamine levels in the brain than other activities, producing a cycle of compulsive use. Ex. 30, Lembke Rep. 12–23; *see* Ex. 31 (June 18, 2025 Lembke Dep.), at 139:2–7. But she acknowledges there is “no brain scan” showing this. *Id.* at 119:6–9. And she could not identify any study comparing the dopamine release from social media to any other behavior. *Id.* at 142:4–143:14.

c) Dr. Lembke Cannot Opine About Internal Company Documents (Opinion 4) That She Has No Expertise Or Context To Interpret.

Dr. Lembke seeks to opine that Defendants’ internal documents show that their social media products are “addictive and unsafe,” Defendants knew it, and they intentionally designed their products that way. Ex. 30, Lembke Rep. 23. Most of Dr. Lembke’s report involves selective quotes from counsel’s cherry-picked, non-technical documents—none of which constitute reliable, scientific evidence or requires an expert to interpret. *Id.* at 23–77 (¶C(4)(a)-(h)). She then layers on her own interpretations of

1 state of mind, motive, and intent.¹⁷ This is impermissible. *See City of Huntington v. AmerisourceBergen*
 2 *Drug Corp.*, 2021 WL 1320716, at *4 (S.D.W. Va. Apr. 8, 2021) (precluding Dr. Lembke and other
 3 experts from offering “[l]engthy expert testimony that merely restates factual information found in
 4 documents” or “expert testimony regarding defendants’ motive, intent, and/or state of mind”).

5 Dr. Lembke is a professor of medicine and practicing psychiatrist. These are not medical records
 6 that fall within Dr. Lembke’s purview. Nor is she allowed to argue what the documents show. The jury
 7 is equally equipped to read Defendants’ documents and decide what inferences to draw. *See City of*
 8 *Huntington*, 2021 WL 1320716, at *2. Thus, Dr. Lembke’s long narratives and subjective “interpretations”
 9 of Defendants’ internal documents—especially as to motive, intent, and knowledge—should be excluded.

10 Moreover, rather than running her own search terms or applying any neutral criteria, Dr. Lembke
 11 relied on counsel’s selection of cherry-picked documents for Opinion 4. Ex. 31 (June 18, 2025 Lembke
 12 Dep.), 54:9–13 & 53:2–54:8 (asking lawyers to provide her with “any documents relating to social media
 13 addiction, problematic social media use, or any synonymous for those terms,” that “spoke to the addictive
 14 design elements,” or on “which we based the diagnoses of addiction”). This is another basis for exclusion.
 15 *In re Onglyza (Saxagliptin) & Kombiglyze (Saxagliptin & Metformin) Prods. Liab. Litig.*, 93 F.4th 339,
 16 347 (6th Cir. 2024) (excluding expert in part for “cherry-picking” data and finding that it is a
 17 “quintessential example” of applying a methodology in an unreliable way).

18 **d) The “Rebuttal” Opinion That Defendants Had A Duty To Warn Is**
 19 **Improper.**

20 Dr. Lembke’s one-sentence “rebuttal” Opinion 4(n) that Defendants “should” warn of an uncertain
 21 list of risks of using their platforms is untimely and violates Rule 702. Ex. 32 (Lembke Rebuttal Rep.), 22
 22 (¶ n).

23 ¹⁷ Examples include: (1) “Meta’s awareness of ‘Problematic Use’ (aka social media addiction) is ‘High,’
 24 while their ‘Product investment’ is ‘Mid-Low.’” Ex. 30, Lembke Rep. 45 (¶ vii); (2) “Snapchat’s CEO
 25 Evan Spiegel’s corporate goal to increase time spent on Snapchat for the purposes of making a profit,
 26 displaying therein their willingness to exploit the science of habit formation and modify their platform to
 27 do that.” *Id.* at 47 (¶ C); (3) “YouTube has given lip-service to creating a product that is safer for teens.”
 28 *Id.* at 65 (¶ iv); and (4) “This statement also shows that TikTok is aware of the unique vulnerability of
 kids’ brains.” *Id.* at 74 (¶ F). “But TikTok’s internal documents reveal that the features added by TikTok
 to protect kids from social media addiction take a back seat to TikTok’s core metrics, namely time spent
 on the platform and profitability.” *Id.* at 74 (¶ B).

1 This opinion is untimely. Her opening report says virtually nothing about warnings, and none of
 2 the defense expert reports that *she reviewed* in preparation of her rebuttal report reference warnings at all.
 3 Ex. 33 (August 27, 2025 Lembke Dep.), 22:16–23:13 (acknowledging rebuttal report only analyzed
 4 reports from certain defense experts) & 107:5–110:2 (failing to identify what defense opinion she was
 5 “rebutting”). The rule is clear: “[b]ecause rebuttal experts and reports are designated as such, their
 6 testimony must contradict or rebut evidence or theories of the opposing expert witness.” *Abdo v.*
 7 *Fitzsimmons*, 2020 WL 4051299, at *2 (N.D. Cal. July 20, 2020). Dr. Lembke’s failure to warn rebuttal
 8 opinion does not do this. She should be precluded from giving it and sandbagging Defendants.

9 On substance, Dr. Lembke’s warning rebuttal opinion fails to pass scrutiny under Rule 702. Dr.
 10 Lembke’s opinion that the law requires or should require a warning is improper. *See Saunders v.*
 11 *Consumers Energy Co.*, 2022 WL 22883512, at *3 (W.D. Mich. Apr. 14, 2022) (excluding testimony
 12 because “[w]hether Defendant owed Plaintiff a duty to warn is a legal question ... [i]t is not a witness’s
 13 job—lay or expert—to interpret the law”); *City of Huntington*, 2021 WL 1320716, at *3 (“personal
 14 opinion about how defendants should act [is] irrelevant”). Moreover, this opinion is not based on *any*
 15 methodology; she has not evaluated what the warnings should say, where they should be made, whether
 16 they should differ between platforms, or the full scope of harms they should cover, and, as a result, she
 17 does not even purport to opine on whether any particular warning would be effective. Ex. 33 (August 27,
 18 2025 Lembke Dep.), 42:17–45:17. As a result, because Rebuttal Opinion 4(n) is both an improper legal
 19 opinion and unhelpful to the jury, it should be excluded.

20 **5. Dr. Mojtabai [PI/SD]**

21 Dr. Mojtabai is an adult psychiatrist who teaches at Tulane University. Ex. 34, Expert Report of
 22 Dr. Ramin Mojtabai (“Mojtabai Rep.”) ¶ 10; Ex. 23, Transcript of Dr. Ramin Mojtabai June 4–5, 2025
 23 Deposition (“Mojtabai JCCP Dep.”) 60:3. Dr. Mojtabai has never diagnosed any of his adult patients with
 24 social media addiction or anything that he would say fits that description, *id.* at 59:22–60:13. Despite this,
 25 he now offers the opinion that “[p]roblematic social media use and social media addiction are substantial
 26 contributing causes of adverse mental health outcomes, including depressive and anxiety symptoms, body
 27 image disturbance, eating disorders, and suicidality, in children, adolescents, and young people.” Ex. 34
 28 (Mojtabai Rep.) ¶ 6. Dr. Mojtabai also claims that “social media addiction” causes Body Dysmorphic

Disorder (“BDD”) and sleep problems. Ex. 23 (Mojtabai JCCP Dep.) 96:14–97:3; Ex. 34 (Mojtabai Rep.) ¶ 6E. These opinions are based on (i) studies that examined the alleged impacts of third-party content; (ii) an analysis that lumps together all alleged injuries and Defendants’ platforms without any basis for doing so; and (iii) a body of literature that does not examine the specific psychiatric disorders at issue (and that, outside of litigation, Dr. Mojtabai admits cannot support causal assessments).

a) Dr. Mojtabai Impermissibly Bases His Causation Opinions on Third-Party Content and Barred Features.

Dr. Mojtabai is unable to offer *any* general causation opinion regarding whether the features actually at issue in this litigation are capable of causing the harms alleged, independent of the protected publishing activities and content this Court has excluded from this litigation. Instead, he admits that he relies on studies investigating the effects of third-party content and protected publishing features to support his opinions. *See* Ex. 34 (Mojtabai Rep.) ¶ 6A–F; *see generally* ¶¶ 71–353. As a result, his opinions should be excluded.

Dr. Mojtabai readily admits that all the observational studies he relies upon assess how participants react and respond to content on social media. Ex. 23 (Mojtabai JCCP Dep.) 594:2–11. “Dr. Mojtabai quotes literature recognizing that studies in this field “fail to distinguish between types of activities or content that can differentially relate to mental health.” Ex. 34 (Mojtabai Rep.) ¶ 314 (quoting Fassi et al. 2024). This is unsurprising, as he concedes that the “extent of [social media] use is intimately related to the content.” Ex. 23 (Mojtabai JCCP Dep.) 709:11–13; *see also id.* at 590:14–591:7 (describing “experimental studies that use material and change the content or expose participants to different content and then measure their ... reaction or outcomes ...”).

Additionally, for the few longitudinal or experimental studies that analyzed features of social media platforms, Ex. 23 (Mojtabai JCCP Dep.) 558:15–559:12, Dr. Mojtabai admitted that three (Kleemans 2018, Tiggemann 2018, Tiggemann 2022) assessed the study participants’ reactions to images that they saw. *Id.* at 560:9–574:20.¹⁸ The other two studies (Coulthard 2018 and Steinsbekk 2023) showed no effect from posting or receiving photos or liking/commenting on posts. *Id.* at 574:23–582:25. Thus,

¹⁸ These five studies included Kleemans 2018, Tiggemann 2018, Tiggemann 2022, Coulthard 2018 and Steinsbekk 2023. JCCP Dep. 558:15–559:12.

either the studies assessed *solely third-party content*, or they showed *no effect*. These concessions make plain that Section 230 and the First Amendment bar Dr. Mojtabai's opinions.

b) Dr. Mojtabai Lacks a Reliable Methodology for His Opinions.

Dr. Mojtabai's general causation opinions must be excluded in their entirety for the independent reason that his methodology is not reliable and risks confusing the jury. Dr. Mojtabai's methodology contains several flaws, each of which independently warrants the exclusion of the opinions he expresses in his expert report and deposition testimony.

(1) Dr. Mojtabai Employs an Unreliable Methodology in this Litigation that He Eschews in His Published Work.

Dr. Mojtabai's general causation methodology (Ex. 34 (Mojtabai Rep.) ¶¶ 71–353) improperly relies upon cross-sectional studies that are inherently incapable of supporting the causal conclusions he attempts to make. To conduct his causation analysis for this litigation, Dr. Mojtabai purported to assess “the consistency of the evidence” by aggregating data from across various and differently-designed studies—“put[ting] them all together ... like a jigsaw puzzle.” Ex. 23 (Mojtabai JCCP Dep.) 495:2–23; *see generally* Rep. ¶¶ 71–353. Dr. Mojtabai admits that he “cannot separate” the evidence he uses to reach his causation opinions by study type and relies on “the totality of the data” to support his causation opinion. Ex. 23 (Mojtabai JCCP Dep.) 200:1–21. By doing so, Dr. Mojtabai employs a methodology that he expressly rejects in his published work. Namely, he uses cross-sectional studies as part of the “pieces to the puzzle” to support a causal inference between the use of social media and the onset of the different mental health disorders he claims are caused by social media use. Ex. 23 (Mojtabai JCCP Dep.) 164:22–165:6; *see also id.* 303:13–18 (relying solely on cross-sectional studies or surveys to support his causation opinions on the claimed injuries in Section 3.1 and Section 4.8 of his Report).¹⁹

Yet, outside the courtroom, Dr. Mojtabai makes clear that cross-sectional studies cannot be used to make causal inferences. Ex. 36 (Cullen, Mojtabai, et al. (2017)) at 10 (“The study has some limitations. *The data are cross-sectional in nature, preventing causal inference.*” (emphasis added)); Ex. 37

¹⁹ Section 3.1 and Section 4.8 of Dr. Mojtabai's Report contain the same opinions as Section 4.1 and Section 5.8, respectively, of Dr. Mojtabai's JCCP Report. Ex. 36, Apr. 18, 2025 JCCP Expert Report of Dr. Ramin Mojtabai (Mojtabai JCCP Rep.).

(Mojtabai (2007)) at 8 (“However, *a causal relationship cannot be examined in cross-sectional data* such as the data from the NCS and NCSR, in which the reciprocal effects of treatment seeking on attitudes and of attitudes on treatment seeking cannot be separated.” (emphasis added)); Ex. 38 (Mojtabai (2024)) at 7 (“[B]ecause of the cross-sectional nature of the data, change in adolescents’ mental health as a result of change in social media use could not be examined.”). Dr. Mojtabai recognizes that cross-sectional studies cannot establish temporality (*i.e.*, whether the exposure came before the outcome). As Dr. Mojtabai puts it, “it is impossible to imagine a causal relationship where the cause does not precede the outcome in time.” Ex. 34 (Mojtabai Rep.) ¶ 30; Ex. 23 (Mojtabai JCCP Dep.) 161:24–162:4; *see also id.* 181:5–15 (“Q. And you put in your report that if A and B are related in a cross-sectional study, it is equally possible that A causes B, B causes A, or the relationship is reciprocal. Correct? A. Correct. Q. And by that, you mean that you don’t know which one is more likely to be occurring, right? A. That’s what it implies, yes.”). As cross-sectional studies cannot establish temporality, they cannot be used for causal inferences.²⁰

In this litigation, Dr. Mojtabai inexplicably casts aside these well-established scientific principles—and explicitly invokes cross-sectional studies to support his causal opinions. Ex. 34 (Mojtabai Rep.) ¶ 33 (“direction of causation in cross-sectional studies ... is ambiguous”); ¶ 146 (“a majority of studies of the association of social media use with depression and anxiety symptoms are cross-sectional”); *see generally* Ex. 34 (Mojtabai Rep.) ¶¶ 82–87; 117–19; 131–45; 159–61; 177–82; 184; 196–99; 213–14; 236–52; 269–76; 314–21; 34–53; Ex. 23 (Mojtabai JCCP Dep.) 283:1–330:20 (discussing cross-sectional studies and meta-analyses of cross-sectional studies relied upon in Amended Report). By doing so, Dr. Mojtabai not only ignores his own published methodology but also what the cross-sectional studies he

²⁰ Dr. Mojtabai’s published statements align with the Reference Manual on Scientific Evidence. Ex. 39, Ref. Manual at 560–61 (“Cross-sectional studies ... do not determine the development of disease or risk of disease (incidence). Moreover, because both exposure and disease are determined in an individual at the same point in time, it is not possible to establish the temporal relation between exposure and disease—that is, that the exposure preceded the disease, which would be necessary for drawing any causal inference.”); *see also* JCCP Dep. 212:10–213:13 (agreeing with Reference Manual’s discussion of cross-sectional studies in that they cannot determine incidence or development of disease).

relies upon say about doing so. As shown in Ex. 40,²¹ a host of cross-sectional studies relied upon by Dr. Mojtabai expressly state that they cannot be used for causal inferences because of their study design. *See also* JCCP Dep. 487:13–488:3 (admitting that cross-sectional studies “cannot establish the causal relationship, the direction of causation”); *Annex Books, Inc. v. City of Indianapolis*, 581 F.3d 460, 463 (7th Cir. 2009) (“[T]he studies are simple cross-sectional analyses that leave causation up in the air.”); *In re Nexium Esomeprazole*, 662 F. App’x at 530 (affirming exclusion of expert who “did not adequately explain how he inferred a causal relationship from epidemiological studies that did not come to such a conclusion themselves”). Dr. Mojtabai’s “methodology” exemplifies how he fails to use “the same level of intellectual rigor” as his work outside of litigation. *Kumho*, 526 U.S. at 152–53; *Sheehan v. Daily Racing Form, Inc.*, 104 F.3d 940, 942 (7th Cir. 1997) (court must evaluate whether “the expert is being as careful as he would be in his regular professional work outside his paid litigation consulting”); *In re Methyl Tertiary Butyl Ether (MTBE) Prods. Liab. Litig.*, 593 F. Supp. 2d 549, 561 (S.D.N.Y. 2008) (expert “never used [methodology] in his day-to-day work, or applied it to any study other than the Stocking Study, which only occurred after he was hired by the plaintiffs as their expert”). Dr. Mojtabai’s general causation opinions must be excluded on this ground.

(2) In Lumping All Disorders Together, Dr. Mojtabai Failed to Conduct a Proper Bradford Hill Analysis.

To reach his causation opinions, Dr. Mojtabai performed a Bradford Hill analysis, a widely recognized method for determining whether the relationship between two variables is a causal one. Ex. 34 (Mojtabai Rep.) ¶¶ 341–52. *Wendell v. GlaxoSmithKline LLC*, 858 F.3d 1227, 1235 n.4 (9th Cir. 2017). But the analysis must be done correctly to pass Rule 702. *In re Roundup Prods. Liab. Litig.*, 390 F. Supp. 3d 1102, 1130–31 (N.D. Cal. 2018) (“What matters ... is whether the way the experts assessed each of the Bradford Hill factors is reliable in light of the underlying evidence.”), *aff’d sub nom. Hardeman v. Monsanto Co.*, 997 F.3d 941 (9th Cir. 2021). Here, Dr. Mojtabai failed to do so, like others of Plaintiffs’ experts, by improperly lumping all the diverse outcomes (e.g., depression, anxiety, bulimia nervosa, BDD) together and then conducting his causation analysis. As Dr. Mojtabai put it, he “did not separately conduct

²¹ This document was an exhibit to Dr. Mojtabai’s JCCP deposition. Ex. 40 (Mojtabai JCCP Dep. Ex. 9) (collecting quotations from 26 cross-sectional studies cited by Dr. Mojtabai).

a Bradford Hill assessment for each individual outcome.” Ex. 23 (Mojtabai JCCP Dep.) 598:15–18. Instead, he put all of the outcomes together in a pot and conducted his causation analysis from there. *Id.* at 595:14–20. This type of “transdiagnostic” analysis (*i.e.*, lumping together multiple outcomes, here, distinct psychiatric disorders) for a causation analysis was rejected as unreliable in *In re Acetaminophen - ASD-ADHD Products Liability Litigation*, 707 F. Supp. 3d at 339–42. There, the court excluded the experts’ opinions because the psychiatric conditions were “undeniably distinct” despite having certain “overlapping features,” *id.* at 340, 363–64, and this approach “obscured limitations in the scientific literature” which made it easier for plaintiff’s expert to “mask[]” the “weakness of the evidence,” *id.* at 339, 347; *Frischhertz v. SmithKline Beecham Corp.*, No. 10-cv-2125, 2012 WL 6697124, at *5 (E.D. La. Dec. 21, 2012) (excluding testimony where expert “lump[ed]” all congenital malformations together to make her analysis” (quotation marks omitted)). Dr. Mojtabai’s causation analysis provides an even more unreliable construct as it wraps together depressive disorders, anxiety disorders, eating disorders, sleep disorders and suicidal thoughts and behaviors into one analysis.

Dr. Mojtabai also readily admits that there is “not sufficient data” to determine if any specific platform causes the diverse set of psychiatric disorders or symptoms that he claims social media causes. Ex. 23 (Mojtabai JCCP Dep.) 595:21–596:9. Dr. Mojtabai conducted no platform-specific analysis, conceding that “it’s not possible in much of the research to specifically attribute the harms to a specific platform because they are assessing overall use of social media.” *Id.* at 79:21–25; *see also id.* at 712:17–18 (“[M]ost of the research is based on social media as a group.”). Tellingly, Dr. Mojtabai stated he did not analyze the Bradford Hill criteria specifically for each platform because “there was not enough data.” *Id.* at 84:4–16. In sum, his testimony lacks the appropriate foundation for admissibility. *Engilis*, 2025 WL 2315898, at *7 (“The key inquiry is whether an expert had sufficient factual grounds on which to draw conclusions.” (quotation marks omitted)).

(3) Dr. Mojtabai’s Opinions Are Based on Studies that Measure Only Self-Reported Symptoms, Not Actual Diagnoses.

Dr. Mojtabai’s causation opinions in paragraphs 71 to 353 also should be excluded because none of the studies actually assessed the diagnosed psychiatric disorders that Plaintiffs allege they developed

1 from social media use.²² The Court may exclude a proffered expert opinion where “there is simply too
 2 great an analytical gap between the data and the opinion proffered.” *Joiner*, 522 U.S. at 146; *see also*
 3 *Perry v. Novartis Pharms. Corp.*, 564 F. Supp. 2d 452, 467–68 (E.D. Pa. 2008) (“In cases where no
 4 adequate study shows the link between a substance and a disease, expert testimony will generally be
 5 inadmissible, even if there are hints in the data that some link might exist.”). Accordingly, courts have
 6 excluded opinions based on symptoms as opposed to an actual diagnosis due to the analytical gap that
 7 exists between the identification of mere symptoms and a medical diagnosis.²³ Dr. Mojtabai’s admissions
 8 show why this Court should do the same here. Specifically, Dr. Mojtabai concedes that no longitudinal
 9 or experimental study assessed psychiatric disorders as an outcome. Ex. 23 (Mojtabai JCCP Dep.)
 10 238:17–23 (“Q. [W]as there any longitudinal study that actually assessed a diagnosed psychiatric disorder
 11 as an outcome measure? A. I’m not aware of one.”); 299:19–300:3 (“cannot ... think of any” experimental
 12 or longitudinal studies assessing whether use of social media exacerbated diagnosed psychiatric
 13 disorders); *see also id.* at 302:9–19, 400:3–402:2, 534:23–535:2, 536:16–537:12.

14 Lacking studies that actually support causation as to Plaintiffs’ alleged psychiatric disorders, Dr.
 15 Mojtabai seeks to bridge this “analytical gap” by relying on studies that focus on self-reported symptoms
 16 or self-reported screening scales that may (or may not) be symptoms of various psychiatric disorders.
 17 Ex. 23 (Mojtabai JCCP Dep.) 474:20–25; *see also id.* at 322:21–323:4. But Dr. Mojtabai’s admissions
 18 undermine his attempt to bridge this “analytical gap” for several reasons. First, Dr. Mojtabai agrees that
 19 “by definition, a screening instrument or a questionnaire is not diagnostic,” and a clinical interview
 20

21
 22 ²² Dr. Mojtabai offers opinions about “depressive and anxiety symptoms” in paragraphs 131–76 of his
 23 Report; his opinions about suicidal behavior appear in paragraphs 177–84; he offers opinions about
 24 “negative social comparison and body image disturbance” in paragraphs 185–235; and his opinions about
 25 “sleep disturbance” appear in paragraphs 236–41. Dr. Mojtabai’s opinions in paragraphs 242 to 353 are
 26 based upon the preceding paragraphs’ discussions of symptoms and thus should be excluded.

27 ²³ *See, e.g., Dufour v. BP Expl. & Prod. Inc.*, No. 19-cv-591, 2023 WL 3807923, at *11–12 (S.D. Miss.
 28 June 2, 2023) (excluding expert who “leap[t] from data showing an increased chance of respiratory
 symptoms” to a conclusion about asthma worsening (citing *Joiner*, 522 U.S. at 144)), *appeal docketed*,
 No. 23-60361 (5th Cir. June 30, 2023); *Williams v. BP Expl. & Prod. Inc.*, No. 22-cv-278, 2024 WL
 340237, at *6 (S.D. Miss. Jan. 30, 2024) (describing expert’s analysis as “unreliable” because it was based
 on “self-reported, acute sinus symptoms, not medical diagnoses of chronic sinus conditions like the one
 claimed by [plaintiff]”), *aff’d*, 143 F.4th 593 (5th Cir. 2025).

provides the means by which to differentiate between symptoms that are not due to a psychiatric disorder and those that are. Ex. 41 (“Mojtabai MDL Dep.”) 51:21–52:3; 36:16–37:17. Second, none of the studies on social media use assessed clinically significant symptoms (*i.e.*, those that rise to the level of diagnosis). Ex. 23 (Mojtabai JCCP Dep.) 347:11–348:15; *see also id.* at 588:2–10 (discussing how the experimental studies that he examined “didn’t state that that was the aim of their study, to examine the association with the clinical outcomes”). Third, for the studies that assessed body dissatisfaction or disordered eating, these are not enough alone to make a diagnosis of any eating disorder or BDD, as “we need a lot more to make a diagnosis.” *Id.* at 530:23–531:24. Fourth, Dr. Mojtabai concedes that he conducted no analysis on whether the screening tools used to collect self-reported symptoms in the studies are a reliable substitute for an actual diagnosis. *See, e.g.*, Ex. 41 (Mojtabai MDL Dep.) 74:17–75:17, 83:7–14 (Dr. Mojtabai agreeing that he has not determined the positive predictive value²⁴ for any screening scale used in the studies); Ex. 23 (Mojtabai JCCP Dep.) 553:10–554:3; 345:6–346:5; 347:11–348:15. Thus, Dr. Mojtabai lacks scientific data that the self-reported screening scales used in the studies provide a reliable substitute for an actual diagnosis.

c) Dr. Mojtabai’s Conclusions About Social Media Addiction and Problematic Social Media Use Are Not Generally Accepted or Reliable.

Finally, Dr. Mojtabai’s report expresses opinions on topics such as “social media addiction” and “problematic social media use,” Ex. 34 (Mojtabai Rep.) ¶ 6A–F; ¶¶ 95–130; *see generally id.* at ¶¶ 82–352, yet these opinions are not “the product of reliable principles and methods,” Fed. R. Evid. 702. Dr. Mojtabai admits that (1) there is “no diagnosis of social media addiction,” Ex. 23 (Mojtabai JCCP Dep.) 60:19–20; (2) he has never diagnosed a child or an adult with social media addiction; *id.* at 59:22–60:13; (3) social media addiction is neither recognized as a psychiatric diagnosis in the DSM-5-TR nor in the ICD-10 or 11, *id.* at 127:4–16, 136:1–2; (4) and there is “[n]o diagnostic criteria for social media addiction

²⁴ A “positive predictive value” provides the means to determine what percentage of individuals who screen positive on a screening scale actually have the disorder or disease. This calculation uses the sensitivity and specificity of a screening scale plus the prevalence of the specific disorder or disease in the population generally to assess the reliability of the screening scale. Ex. 41 (Mojtabai MDL Dep.) 73:11–74:16; Ex. 24 (Mojtabai JCCP Dep.) 547:21–548:12.

that has been formally accepted or recognized by any psychiatric organization,” *id.* at 127:21–128:2. And he cannot say to a reasonable degree of scientific certainty how much time constitutes “excessive use” of social media that then leads to *any* of the mental health outcomes that he attributes to social media use. *Id.* at 511:12–512:2; *see also id.* 509:24–510:25 (“I don’t think you can put an actual number on it.”). Thus, no threshold exists for what constitutes either “condition” beyond Dr. Mojtabai’s say-so—that is hallmark *ipse dixit*. *Lust*, 89 F.3d at 597.

6. Dr. Murray [PI/SD]

Dr. Stuart Murray’s unsupported opinions about undefined aggregate social media use also do not satisfy the requirements for admissibility of Rule 702 because they (1) improperly rely upon third-party content and protected publishing features; (2) are not the product of reliable principles or methods; and (3) are generic conclusions about social media, generally, that do not fit the facts of this case concerning *Plaintiffs’ claims* that they suffered *injuries identified in their Complaint*, which they attribute to specific features of *each Defendant’s platform(s)*. In light of the many gaps in Dr. Murray’s flawed analysis, his irrelevant and unhelpful opinions can only result in substantial unfair prejudice to Defendants, particularly given that “expert testimony may be assigned talismanic significance in the eyes of lay jurors.” *United States v. Frazier*, 387 F.3d 1244, 1263 (11th Cir. 2004) (en banc).

Dr. Murray, a clinical psychologist and professor, offers the following general causation opinions: (1) “[u]se of social media can cause problematic use or social media addiction in children and youth and can cause or contribute to cause other mental health harms,” including “increased risk for anxiety, depression, eating disorders, body dysmorphia, suicidality/self-harm, and insomnia”; and (2) “[p]roblematic use of social media can exacerbate symptoms of existing eating disorders.” Ex. 42, Expert Report of Dr. Stuart Murray (“Murray MDL Rep.”) ¶¶ 3A–I; *see also generally id.* at ¶¶ 152–217; 226–54; 267–71; 284–94.

a) Dr. Murray Impermissibly Relies on Third-Party Content and Protected Publishing Features.

The Court should exclude Dr. Murray’s causation opinions because, like Plaintiffs’ other experts, he does not address the question at hand: whether the at-issue features are independently capable of causing harm. Dr. Murray’s testimony makes abundantly clear that he did not even attempt to parse out

the effects of the specific at-issue features from the effects of third-party content and protected features. In his own words, Dr. Murray explained that it would be “speculative” to opine whether any amount of alleged harm is “caused by the content ... by [the] algorithm or some other feature,” because “the studies assess social media platforms, which includes their features and what’s on them.” Ex. 43 (“Murray JCCP Dep.”) 433:13–24. And when asked if he was ever provided “with a list or summary of any kind of the defendants’ platform features that are immunized or not subject to liability,” he responded, “No.” Ex. 44 (“Murray MDL Dep.”) 270:8–271:5.

The shortcomings of Dr. Murray’s opinions are unsurprising, given the nature of the scientific evidence on which he relies. Much of this literature expressly examines the impact of content. See generally Ex. 42 (Murray MDL Rep.) § XI (relying on studies measuring the effect of exposure to specific types of content on social media platforms). Based on these studies, Dr. Murray asserts that “content that is on [Defendants’ platforms] propagates harm.” Ex. 44 (Murray MDL Dep.) 290:11–17. And even where the literature does not specifically focus on content, as Dr. Murray testified, “the studies that [he] cite[s] documenting harm assess social media in the context of both the content and all the design features,” such that “disaggregat[ing] these two key inextricable features ... is hard.” Ex. 43 (Murray JCCP Dep.) 433:8–11 (emphases added). Though Dr. Murray calls such studies “content agnostic,” meaning they “did not consider the content,” he agrees that those studies evaluated subjects while they were “viewing content.” Ex. 44 (Murray MDL Dep.) 312:15–19, 311:7–16, 312:6–14. To be clear, simply ignoring content does not mean that the effect of content was controlled and accounted for. See Omnibus Section 230 *Daubert* Brief at 13–14. As Dr. Murray conceded, such studies cannot extricate the impact of content from features—let alone the impact of protected publishing features from the at-issue non-publishing features.

b) Dr. Murray’s Opinions Are Not Based on Generally Accepted or Reliable Methodologies, Are Unhelpful, and Are Likely to Mislead the Jury.

Dr. Murray’s causation methodology includes study designs that he admits cannot be used for causal inferences. Dr. Murray used a “totality of the evidence” causation analysis where he imposed “[n]o limitations on the study methodology” he included, such as cross-sectional studies which cannot support a causal inference. Ex. 43 (Murray JCCP Dep.) 298:10–299:14, 300:1–21; *see also* Ex. 42

(Murray MDL Rep.) ¶¶ 155, 158–61; 164, 166–67; 171; 175–77; 205–08; 226–33; 235–37; 242–43; 248; 265–66; 286–88; 291. As discussed *supra* at § IV.5(b)(1), science and the law both recognize that cross-sectional studies cannot establish the essential requirement of temporality or be used to assess the development or the risk of a disorder. *See supra* § IV.5(b)(1). Outside of the context of this litigation, Dr. Murray’s methodology expressly (and consistently) follows these well-settled principles that cross-sectional studies do not allow for causal inferences. *See, e.g.*, Ex. 45 (Murray MDL Dep. Ex. 12) (“[O]ur study is cross-sectional and non-experimental **and therefore does not permit causal claims.**” (emphasis added)); Ex. 46 (Murray JCCP Dep. Ex. 27) at 2085 (“**[T]he cross-sectional nature of our analysis does not allow for inferences on causality.**”) (emphasis added); Ex. 47 (Murray JCCP Dep. Ex. 24) at 43; Ex. 48 (Murray JCCP Dep. Ex. 26) at 218 (similar); *see also* Ex. 43 (Murray JCCP Dep.) 319:8–25. Yet, inside the courtroom, Dr. Murray applies a different methodology by using cross-sectional data as part of his causation analysis. While study outcomes “may be subject to differing interpretations ... there simply is no interpretation by anyone other than” Plaintiffs’ experts (*solely within the context of and for the purposes of this litigation*) that cross-sectional studies can establish causation. *See In re Viagra (Sildenafil Citrate) & Cialis (Tadalafil) Prods. Liab. Litig.*, 424 F. Supp. 3d 781, 797–99 (N.D. Cal. 2020) (excluding opinion because expert’s “decision to weigh [strength of association] factor relatively heavily in support of the existence of causality ... appear[ed] untethered to the evidence”). Dr. Murray’s use of a methodology that not only lacks general acceptance and reliability but also flies in the face of his own out-of-court statements makes his opinions unreliable. *See Cambridge Lane, LLC v. J-M Mfr’g Co.*, No. 2:10-cv-6638, 2025 WL 1843110, at *9 (C.D. Cal. Feb. 24, 2025) (“[W]hen an expert ignores evidence that is highly relevant to his conclusion, contrary to his own stated methodology, exclusion of the expert’s testimony is warranted.” (quotation marks omitted)). Because Dr. Murray needs cross-sectional studies to reach his opinions as part of his “totality of the evidence” causation analysis, his methodology is inextricably tainted by studies that are not capable of being used to make causal inferences. This unreliable and unscientific approach should be excluded.

Dr. Murray could not identify studies reliably establishing a dose-response relationship between social media use and the psychiatric disorders he claims social media use causes. Under Dr. Murray’s causation methodology, “*to establish cause and effect ... you would want ... an understanding*

of how much exposure is associated with how much harm or a *dose-response*.” Ex. 43 (Murray JCCP Dep.) 327:6–328:1 (emphases added). Thus, without a dose-response effect, Dr. Murray admits that he cannot reach a causation opinion. Yet, (1) he could not identify any study showing a dose-response effect as to specific psychiatric disorders he claims are caused by social media, and (2) to the extent he relied on studies to support a claimed dose-response relationship, he exclusively relied on cross-sectional studies that cannot establish that the exposure occurred before the outcome. *See, e.g., id.* 548:8–13 (testifying that he is unable to identify any study that establishes a dose-response effect between social media use and anxiety or anxiety-related symptoms); *id.* 548:14–549:25 (same for suicidal thoughts or behavior); *id.* at 540:2–543:7 (agreeing both studies he relies upon as evidence of a dose-response effect between social media use and eating disorders were cross-sectional studies); *id.* at 544:5–546:3, 546:18–24 (same for both studies concerning depressive symptoms). Given that Dr. Murray “failed to faithfully apply his own standard for ‘good science,’” his causation opinions should be excluded. *See In re Incretin-Based Therapies Prods. Liab. Litig.*, 524 F. Supp. 3d 1007, 1046 (S.D. Cal. 2021).

Dr. Murray failed to perform a causation analysis for individual eating disorders. In his everyday practice, Dr. Murray uses the DSM diagnostic criteria to make diagnoses because it “guides our diagnostic practice.” JCCP Dep. 138:16–25. He also recognizes that each eating disorder has its own set of diagnostic criteria, including each of the disorders he opines is caused by social media use—Anorexia Nervosa (“AN”), Bulimia Nervosa (“BN”) and Binge Eating Disorder (“BED”).²⁵ Ex. 42 (Murray MDL Rep.) § V(B); Ex. 43 (Murray JCCP Dep.) 237:9–20 (admitting that he uses the specific diagnostic criteria for the specific disorder); 257:13–22. Yet, Dr. Murray never conducted a “separate analysis for each disorder”, instead lumping them together “as a group.” *Id.* 455:3–19; *see* Ex. 42 (Murray Rep.) ¶ 3A–C & H; *see generally id.*, including ¶¶ 152–86.

That assessment has three fundamental flaws. First, it ignores that each disorder has separate and distinct diagnostic criteria. Dr. Murray makes no effort to explain how he can reliably combine these distinct disorders to make a causal assessment. As discussed *supra* at § IV.5(b)(2), this “transdiagnostic”

²⁵ He does not opine that social media use causes two other eating disorders, Avoidant/Restrictive Food Intake Disorder (“ARFID”) and Other Specified Feeding and Eating Disorder (“OSFED”). *Id.* at 257:13–22.

causation analysis departs from both a generally accepted methodology and a reliable one. *See also In re Incretin*, 524 F. Supp. 3d at 1041 (a methodology used outside of litigation that is “wholly contrary to his stated methodology [here] ... casts doubt on the reliability of the methods he employed in this case.”), *aff’d*, 2022 WL 898595 (9th Cir. Mar. 28, 2022). Second, none of the studies at issue actually assessed either AN or BN. Ex. 43 (Murray JCCP Dep.) 294:20–295:22. As for BED, Dr. Murray claimed that Nagata 2021 from the ABCD database used a diagnosis as an end-point.²⁶ *Id.* at 279:8–281:11. But Dr. Murray conceded that this study’s data and findings on diagnoses were identified as being inaccurate as discussed in a subsequent publication that used data from the ABCD database. *Id.* at 286:25–292:3; *see also* Ex. 49 (Murray JCCP Dep. Ex. 23) at 8 (Shi 2024 article stating, “The prior study [Nagata 2021] relied on eating disorder diagnoses which were subsequently identified as inaccurate in the ABCD Study 5.1 release notes ...”). Third, by combining all eating disorders into a single bucket to do his causation analysis, he cannot know which of the purported symptoms reported in the studies relate to the three eating disorders he claims are caused by social media use (AN, BN and BED) and which relate to the two he admits are not caused by social media use (ARFID and OSFED). Thus, Dr. Murray cannot even reliably determine what is assessed or captured in the studies he relies upon. The Court should not allow Plaintiffs to confuse or mislead the jury with Dr. Murray’s undifferentiated, unreliable methodology that cannot assist in determining causation of *specific diagnosed disorders* alleged here.

Dr. Murray’s flawed methodology relies on studies that never assessed diagnosed disorders and instead used self-reported screening scales or symptoms. As discussed above, Dr. Murray failed to identify a single study that can provide reliable evidence of evaluating *diagnosed* eating disorders to determine whether social media caused that eating disorder. *See* Ex. 42 (Murray Rep.) ¶ 3A–C & H, *see also generally id.* including ¶¶ 152–86. Nor could Dr. Murray identify any study that assessed any other diagnosed psychiatric disorders as an endpoint or outcome, including: social or general anxiety disorder, panic disorder or BDD. Ex. 43 (Murray JCCP Dep.) 250:15–24, 294:20–295:22, 362:1–15, 369:22–9; *see* Ex. 42 (Murray Rep.) ¶ 3A–C, ¶¶ 187–237; 255–71. Even then, Dr. Murray could not identify a single

²⁶ Dr. Murray’s claim that there is a study that had a diagnosis as an outcome measure conflicts with Dr. Mojtabai’s testimony that there is no such study. *See supra* at § IV.5(b)(3).

1 controlled study or experimental study that assessed clinically significant symptoms. *Id.* at 351:10–
 2 352:13. Plaintiffs in this litigation allege these disorders as their claimed injuries. Yet, no studies actually
 3 found even an association between these disorders and social media use. And what is more, Dr. Murray
 4 was not able to identify a single study that assessed whether patients with a diagnosed psychiatric disorder
 5 were somehow made “worse” by their use of social media. *Id.* at 378:17–25. This “analytical gap” in
 6 evidence warrants the exclusion of Dr. Murray’s opinions. *See Casey v. Ohio Med. Prods.*, 877 F. Supp.
 7 1380, 1385 (N.D. Cal. 1995) (excluding expert “opinion on general causation” based on multiple cases
 8 when “in only one case was the patient actually diagnosed with [the disease at issue], rather than with
 9 symptoms of the disease”); *see also Sanderson*, 950 F. Supp. at 986 (“[T]his argument equates symptoms
 10 with injuries ...” (emphasis omitted)).

11 With no reliable data to support his opinions, Dr. Murray claims that screening scales of self-
 12 reported symptoms are a “field-wide accepted” and “empirically supported and gold standard assessment.”
 13 *See* Ex. 42 (Murray Rep.) ¶¶ 296, 303, Ex. 50 (Murray Rebuttal Rep.) § II(G). But Dr. Murray conceded
 14 that he did not assess or evaluate the error rate of these screening scales and their ability to capture only
 15 subjects with an actual diagnosis. *See, e.g.*, Ex. 44 (Murray MDL Dep.) 71:12–72:4, 85:21–88:8
 16 (testifying that he cannot identify a study that calculated the positive predictive value to determine the
 17 reliability of the screening scales at issue); Ex. 43 (Murray JCCP Dep.) 150:25–151:4 (admitting he did
 18 not know the positive predictive value for the SCOFF or EDE-Q screening scales); 153:19–154:20 (same).
 19 In fact, Dr. Murray admitted that there is not a test that can predict who will have an eating disorder and
 20 who will not. *Id.* at 153:11–154:20.²⁷ Further still, the studies upon which Dr. Murray relies refute his
 21 claim that these scales alone can serve as a reliable basis for a diagnosis. *See, e.g.*, Ex. 51 (Murray MDL
 22 Dep. Ex. 6) at Table e3 (“Guidelines highlight that reliance on screening tools alone, such as SCOFF, is
 23 not sufficient for diagnosis.”). Indeed, *because* of their inconsistencies, Dr. Murray determined, “*it is*
 24 *important that the assessment of historical psychiatric symptomatology not rely solely on retrospective*
 25 *measure administration*, but include clinical assessment, a review of historical health records, and
 26

27
 28 ²⁷ As Dr. Mojtabai testified, studies that assessed body dissatisfaction or disordered eating are insufficient
 to make a diagnosis of an eating disorder or BDD. *See supra* at § IV(A)(5)(c).

interview with family members and witnesses, to inform a comprehensive assessment of historical symptomatology.” Ex. 42 (Murray Rep.) ¶ 300. Dr. Murray’s unsupported opinion that screening scales or self-reported symptoms are a reliable substitute for a diagnosis of a psychiatric disorder is no more than his own inadmissible *ipse dixit*. See *In re Incretin*, 524 F. Supp. 3d at 1045 (excluding expert opinion when “other than his say so, [he] has not pointed to relevant evidence to support his conclusion”).

Dr. Murray cherry-picked studies and failed to assess evidence that refutes his made-for-litigation science. Dr. Murray failed to rigorously assess reliable longitudinal studies that showed no association between social media use and the self-reported symptoms of psychiatric disorders he evaluated. See *In re Incretin*, 524 F. Supp. 3d at 1037 (recognizing “disregard[] [of] independent research at odds with expert’s testimony,” or “failure to meaningfully account for medical literature at odds with [his] testimony is a basis for a finding on unreliability” (emphasis added)). Despite purportedly considering over 600 articles, Dr. Murray could not identify a single longitudinal study cited or discussed in his reports that found no association between social media and the symptoms he analyzed. See Ex. 44 (Murray MDL Dep.) 108:11–109:2; 112:20–112:3; Ex. 43 (Murray JCCP Dep.) 454:13–455:2; 561:16–563:10.²⁸ His selective disregard of reliable scientific evidence that does not support his opinions is yet another reason to exclude his opinion. *In re Bextra & Celebrex Mktg. Sales Pracs. & Prod. Liab. Litig.*, 524 F. Supp. 2d 1166, 1176 (N.D. Cal. 2007) (excluding opinion of expert who “cherry-pick[ed]

²⁸ After Plaintiffs’ counsel on re-direct placed in front of Dr. Murray four studies (Murray MDL Dep. Exs. 15–18) and, over Defendants’ objection to leading, asked Dr. Murray to confirm, “those are negative studies that you considered in your analysis,” Dr. Murray agreed. MDL Dep. 319:14–321:14. But these four articles fail to help Dr. Murray. See Ex. 52 (Murray MDL Dep. Ex. 15) at 5 (“[E]xperimental studies should not be used ... this undermines causal claims ... there are reasons to suspect that the methodology of most such studies is simply not up to the task.... [G]reater reliance on good longitudinal designs may be more effective.”); Ex. 53 (Murray MDL Dep. Ex. 16) at 8 (“[M]ethodological limitations are endemic within the field.... We call upon our colleagues ... to take a more cautions and conservative approach to making causal attributions....”); Ex. 54 (Murray MDL Dep. Ex. 17) at 170 (“[A]ll but one of the studies in this analysis used a cross-sectional correlational design, so we cannot infer the temporal relationship [R]elevant longitudinal studies are starting to emerge ... a meta-analysis of longitudinal effects may become viable, which will be particularly informative.”); Ex. 55 (Murray MDL Dep. Ex. 18) at 411 (“[T]he low quality and conflicting state of the literature highlights many areas of the research field that need to be improved”), *id.* at 412 (“[T]he research area examining these crucial questions does not deliver concrete results, but is instead weighed down by a lack of quality evidence that causes the production of much conflicting evidence.”).

1 observational studies that support his conclusion and *reject[ed] or ignor[ed] the great weight of the*
 2 *evidence that contradict[ed] his conclusion*” because “opinion does not reflect scientific knowledge, is
 3 not derived by the scientific method, and is not ‘good science’” (emphasis added)).

4 **c) Dr. Murray’s Opinions Fail to Establish a Causal Nexus Between Each**
 5 **Alleged Harm and Each Individual Defendant’s Platform and Design**
 6 **Features.**

7 As discussed above, Plaintiffs must satisfy their burden of proof as to *each Defendant* by showing
 8 that *each Defendant’s platform* was a cause of the particular alleged injuries. *See Sanderson*, 950 F. Supp.
 9 at 985 (“While a jury could probably find that defendants’ products, *as a whole*, were a substantial factor
 10 in causing her injuries, plaintiff has no evidence whatever from which a jury could find that *any particular*
 11 *defendant’s products* were.” (emphases in original)). Like Plaintiffs’ other experts, Dr. Murray’s opinions
 12 are not helpful to the jury in assessing this question because they impermissibly lump all Defendants
 13 together. Dr. Murray recognized that Defendants’ platforms *are not the same*. as “[e]veryone has their
 14 own” features, such as each platform’s algorithm, Ex. 44 (Murray MDL Dep.) 292:9–14. Yet Dr. Murray
 15 declined to “do a specific analysis as to each defendant’s platforms,” and/or “any psychiatric or mental
 16 health outcome that [he] claim[s] social media use cause,” Ex. 43 (Murray JCCP Dep.) 455:20–457:5.
 17 Without those details, Dr. Murray was unable to analyze the impact of any specific platform’s features
 18 (let alone the impact of the “at issue” features on each platform, *see supra* § I n.2). Ex. 44 (Murray MDL
 19 Dep.) 293:20–22, 295:9–18, 296:21–297:10.

20 Based on his aggregate review of “social media” generally (including non-Defendant platforms),
 21 Dr. Murray concluded unspecified “features rendered harm.” *Id.* at 312:25–313:3. Dr. Murray concluded
 22 that “all of [the] features coalesce together to drive the harms,” explaining, “[i]t’s kind of challenging to
 23 disambiguate or disaggregate one feature from another, because they do manifest together.” *Id.* at 266:22–
 24 267:12. This is insufficient. Like all of Plaintiffs’ experts, Dr. Murray has no specialized knowledge—
 25 despite receiving over \$1 million in expert witness fees—to determine “it’s kind of challenging” to reach
 26 a reliable causation opinion. Plaintiffs cannot substitute Dr. Murray’s unsupported conclusions under the
 27 guise of an expert opinion. *See Frazier*, 387 F.3d at 1262–63 (excluding opinion that “offers nothing more
 28 than what lawyers for the parties can argue in closing arguments” because it cannot assist the jury). Dr.

Murray's disregard for the purpose of his testimony is a more than adequate reason to exclude it.

7. Dr. Telzer [PI/SD]

Dr. Eva Telzer's core causation opinions regarding social media's impact on adolescent mental health are not only contradicted by her academic work but are based on unreliable methodology and insufficient evidentiary support. She opines that (1) "heavy social media use changes the development of the adolescent brain, altering it from what would have been considered typical prior to the advent of social media" (Ex. 56, Expert Report of Dr. Eva Telzer, Ph.D ("Telzer Rep") Section 1 ¶ 7, Section 8 ¶¶ 145–182) (Opinion 1); (2) "problematic social media use and addiction can cause or contribute to loss of sleep, anxiety, depression, low self-esteem, negative social comparison, other mental health problems, and conflicts with parents" (Ex. 56 (Telzer Rep.) Section 2 ¶¶ 5–10, Section 8 ¶¶ 174–204, Section 11 ¶¶ 292–299, 329–336) (Opinion 2); and (3) "[s]ocial media is characterized by a set of features designed to promote endless engagement" that "can cause problematic usage in children and teenagers" and that "teenagers are particularly vulnerable to developing problematic social media use or outright addiction" (Ex. 56 (Telzer Rep.) Section 2 ¶¶ 5–9, Section 7 ¶¶ 123–138, Section 8 ¶¶ 205–221, Section 11 ¶¶ 383–386)) (Opinion 3).

These opinions lack intellectual rigor and run afoul of this Court's November 14, 2023, Order excluding harm from certain "features" under Section 230. Dr. Telzer's opinions (1) are barred by Section 230 and the First Amendment; (2) are riddled with methodological flaws; (3) rely on an invented, unverified scale that is not generally accepted in her field; and (4) are not specific to each Defendant. When she is not a paid expert, Dr. Telzer admits the available scientific evidence does not support the claims she makes in this case.²⁹ They should be excluded.

a) Dr. Telzer's Opinions (Opinions 1-3) Must Be Excluded Because They Impermissibly Rely on Content and Publishing Activity.

Dr. Telzer's opinions merit exclusion because they are based on protected publishing features and third-party content that this Court has already excluded from this litigation under Section 230 and the First Amendment. Dr. Telzer, like Plaintiffs' other experts, has failed to address the central causation question:

²⁹ Dr. Telzer also offers an opinion on warnings, which is not a "general causation" opinion and which Defendants will therefore address as part of the second phase of Rule 702 briefing.

whether the non-publishing features of Defendants’ platforms are capable of causing harm, *independent* of the protected publishing features and content on the platforms. *See, e.g.*, Ex. 57, Transcript of Dr. Eva Telzer June 12, 2025 and June 13, 2025 (“Telzer JCCP Dep.”) 501:13–17, 23–25 (describing how algorithms “feed different content and material to increase ... the user’s likelihood of engaging and spending more time on that app”); Ex. 58 Transcript of Dr. Eva Telzer August 8, 2025 Deposition (“Telzer MDL Dep.”) 123:5–7, 13–17 (“[T]hat content is being fed at an exponential rate because of the algorithms ... I believe that the algorithms are feeding those with eating disorders more ... content that includes dieting, exercise, toxic eating ...”). As Dr. Telzer said in an interview about her work, “[i]t’s not about necessarily the overall time, but the *content* that they’re exposed to.” Ex. 59, Alan Hu Foundation Interview ³⁰.

Dr. Telzer *purports* to base her opinions on “features,” rather than content. But *all* of the “unique features” of social media that Dr. Telzer claims make teens vulnerable to it intrinsically depend on protected publishing features and content. *See* Ex. 56 (Telzer Rep.) ¶¶ 123–138. She highlights (1) “[p]ublicness” of being able to “view, like, share, and comment on content,” *id.* at ¶¶ 124–125; (2) “[v]isualness” of “images, videos, and aesthetic presentation,” *id.* at ¶¶ 126–127; (3) “[a]vailability” of “interaction, feedback, and connection” with others and their “content,” *id.* at ¶¶ 128–129; (4) “[q]uantifiability” of interaction with “content,” *id.* at ¶¶ 130–131; (5) “[a]lgorithmic” content recommendations, *id.* at ¶¶ 132–133; (6) “[a]synchronicity,” in which users can respond to others’ content later, *id.* at ¶ 134; (7) “[c]ue [a]bsence” in messaging and “ephemeral content,” *id.* at ¶¶ 135–136; and (8) “[p]ermanence” of content online, *id.* at ¶¶ 137–138. *All* improperly depend on harms directly resulting from viewing third-party content published on online platforms.

And even if Dr. Telzer had sufficiently distinguished between content and features—which she has not—her definition of “features” includes non-actionable aspects of Defendants’ platforms. Dr. Telzer testified that she considers both likes and notifications to be “features” for purposes of her opinions, Ex. 58 (Telzer MDL Dep.) 114:6–15:4—despite the Court’s finding that “Section 230 bars plaintiffs’ product defect claims” “where notifications are made to alert users to third-party content,” “includ[ing]

³⁰ https://youtu.be/kK6k9b_GbUs?feature=shared&t=3552 at 59:13.

1 notifications that someone has commented on or liked a user’s post,” PI Order at 833; *see also id.* at 837
 2 (the First Amendment protects the “timing and clustering of notifications of defendants’ content”).

3 **b) Dr. Telzer’s Opinions (Opinions 1-2) that Heavy Social Media Use**
 4 **“Causes” Changes in the Brain and “Causes” Mental Health Harms**
 5 **Are Based on an Unreliable Methodology.**

6 Expert witness testimony must be “based on sufficient facts or data,” and “the product of reliable
 7 principles and methods.” Fed. R. Evid. 702(b)-(c). But Dr. Telzer proffers inconsistent standards. In
 8 February 2025, Dr. Telzer warned that researchers must be “cautious in making these causal claims” about
 9 social media and adolescent brains because “causal data are largely unavailable.” Ex. 60, (Healthy Heels
 10 Video).³¹ But she displays none of that caution here. For example, Dr. Telzer claims here that social
 11 media use can cause or contribute to “depression” or “depressed mood.” Ex. 56 (Telzer Rep.) ¶¶ 9–11,
 12 300–305. Yet in a paper she co-authored this year, Dr. Telzer concluded the opposite: that any perceived
 13 “association” between social media use and adolescent mental health “is not indicative of a cause-and-
 14 effect relation” because it “cannot attest to the directionality of these associations” and “it is plausible
 15 [that] on days in which adolescents are already experiencing greater depressive symptoms, they are more
 16 likely to turn to social media.” Ex. 61 at 205, 208–09. Now serving as a paid expert, Dr. Telzer ignores
 17 her own statements and claims that her paper “provide[s] evidence that social media use causes depressed
 18 mood.” Ex. 56 (Telzer Rep.) ¶ 302. As she has said many times outside of litigation, “there’s just not
 19 enough causal evidence yet to make these claims that social media is causing depression.” Ex. 62.³² Her
 20 disregard for scientific principles that she embraces in her *academic* work fails to demonstrate the
 21 necessary “good science” in forming her opinions. *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579,
 593 (1993).

22 **(1) Dr. Telzer relies on correlational evidence that *cannot* prove**
 23 **causation.**

24 It makes sense that Dr. Telzer’s academic work urges caution in attempting to identify a causal
 25 link between social media use and mental health. The vast majority of the studies upon which Dr. Telzer
 26

27 ³¹ <https://youtu.be/CqJFWaL1f4o?feature=shared&t=1032> at 17:13.

28 ³² <https://www.wral.com/video/on-the-record-social-media-s-impact-on-children/20883778/> at 19:12.

relies show (at most) a small, non-causal association between social media use and mental health issues. To try to get around this issue in her paid litigation work, Dr. Telzer first claimed during her deposition that association can be interchanged *with* causation. *See, e.g.*, Ex. 57 (Telzer JCCP Dep.) 170:22–23 (“We often use the word ‘association’ to mean that one is likely to cause the other.”); Ex. 58 (Telzer MDL Dep.) 166:18–24 (agreeing that her expert reports use “associations” interchangeably with “cause”). But as scientific authorities and courts agree, that is wrong. *See, e.g.*, Ex. 63 at 32 (discussing the process required to translate an “observed *association* to a verdict of *causation*” (emphasis added)); *In re Roundup Prods. Liab. Litig.*, 737 F. Supp. 3d 898, 905 (N.D. Cal. 2024) (“But saying there is a ‘compelling link’ or an ‘association’ isn’t the same as saying that Roundup is capable of *causing* NHL in humans—which is what a plaintiff’s general causation evidence must enable the jury to conclude.”). Indeed, Dr. Telzer eventually admitted that the two are different—but she continued to offer “causation” opinions even while conceding that the literature showed only correlation. *See* Ex. 57 (Telzer JCCP Dep.) 172:20–24; *id.* 198:17–23; *id.* 209:22–24.

(2) Dr. Telzer cherry-picks from the scientific literature.

Dr. Telzer offers opinions without literature support. Dr. Telzer fails her obligation to account for “contrary scientific literature[.]” *Sanchez v. Bos. Sci. Corp.*, No. 2:12-CV-05762, 2014 WL 4851989, at *11 (S.D. W. Va. Sept. 29, 2014), instead “selectively choos[ing]” convenient support. *Id.* The prevailing scientific literature does not support a causal link between social media use and adolescent mental health outcomes. *See supra* § II.B. Her attitude toward the DSM-5 demonstrates that she fills in these gaps with *ipse dixit*. Although “social media addiction” is not a recognized affliction in the DSM-5, Dr. Telzer insists she knows better: “Social media addiction is a real thing. I don’t need the [DSM] to tell me that” Ex. 57 (Telzer JCCP Dep.) 389:4–6. Moreover, Dr. Telzer often simply does not rely on literature to support her opinions. *See, e.g.*, Ex. 56 (Telzer Rep.) ¶¶ 125–138 (citing only company documents when discussing how features of social media affect adolescents); Ex. 58 (Telzer MDL Dep.) 211:23–212:8 (describing her source for establishing the “hallmark features of social media” as “I’m an expert and know this”).

Dr. Telzer leaps from studies on phone use to conclusions specific to social media. An expert’s opinion that specific platform features lead to heavy social media use and affect mental health cannot rest

on studies about time spent on a device generally, which do not distinguish between time spent using Defendants’ platforms, other social media use, other app use, and other types of phone use—let alone use of the specific features on Defendants’ platforms divorced from third-party content. *See supra* 1-2. Yet Dr. Telzer employs that very methodology. *See, e.g.*, Ex. 56 (Telzer Rep.) ¶ 314 (discussing study of screen time and sleep); *id.* at ¶ 339 (discussing study of phone use and academic performance); Ex. 58 (Telzer MDL Dep.) 156:25–160:5 (explaining that study on screen time did not disaggregate the time spent on specific social media platforms). Opinions about Defendants’ platforms’ features based on these studies about devices are speculative and unreliable.

c) Dr. Telzer’s Opinions (Opinions 1-2) Regarding “Addiction” Are Speculative and Based on an Unreliable Methodology.

Dr. Telzer says that “problematic” or “addiction-like social media use” (“ASMU”) are recognized conditions that can cause harms. But Dr. Telzer is not a psychiatrist or a medical doctor, and she cannot point to any diagnostic codes or manuals in support of this opinion because, as noted above, there is none. Indeed, the DSM-5 does not recognize ASMU or anything like it. Instead, Dr. Telzer’s ASMU scale reflects her own “novel 7-item questionnaire” based on some (not all) of the DSM-5 criteria for diagnosing *substance-use* disorder. Dr. Telzer made this up because, as she concedes, there is no “well-validated ... scale for [ASMU],” and the DSM-5 does *not* include a diagnosis for “social media addiction.” Ex. 56 (Telzer Rep.) ¶ 292; Ex. 57 (Telzer JCCP Dep.) 377:5–6, 386:16–18. That is for a good reason: “there is insufficient peer-reviewed evidence” to support including that diagnosis in the DSM-5. *See* Ex. 64 at 481.

As Dr. Telzer admits, using substance-use frameworks to diagnose social media use as “addiction” has been widely criticized and debated. *See* Ex. 61 at 207 (noting “disagreement among scholars on the applicability of certain criteria to technology-based addictions”). Even after this litigation began, Dr. Telzer published an article finding that “additional research is needed before determining that problematic social media use can be appropriately given the ‘addiction’ label akin to substance use disorders.” Ex. 61 at 208. She cannot now take a different.

d) Dr. Telzer’s Opinions Regarding Students’ Smartphone and Social Media Use During School Are Not Based on Sufficient Facts or Data (Opinion 2).

The Court should exclude Dr. Telzer’s opinions that (a) students are “constantly picking up their

phones” during the school day, Ex. 56 (Telzer Rep.) ¶ 331; (b) that “adolescents spend 39% of their time at school on their phones distracted from learning,” *id.* ¶¶ 329–30; and (c) that “50% of their total screen time” during school hours “was spent on social media,” *id.* ¶ 336. As an initial matter, these studies speak to smartphone use generally—not use of Defendants’ platforms. Moreover, those opinions are accompanied by charts that Dr. Telzer created using unpublished “objective social media use data” that her lab collected as part of a six-year longitudinal study of a cohort of students in one rural North Carolina school district that she refuses to identify. *Id.* ¶ 280; Ex. 65, Expert Rebuttal Report of Dr. Eva Telzer, Ph.D (“Telzer Rebuttal Rep.”) ¶ 151 & App’x 1. Dr. Telzer did not produce that full dataset. *See* Ex. 66–69; Ex. 57 (Telzer JCCP Dep.) 138:1-23, 142:9-22, 143:17-144:3, 145:24-146:14, 146:24-147:5, 573:3–578:7; Ex. 70, May 13, 2025 1:14 PM Email from Rachel Lanier to Rose Ehler re: Dr. Telzer – Production Deficiencies (claiming Dr. Telzer could not produce all of her data because it was “subject to IRB approval restrictions”). Telzer claims: “None of my opinions rely on the unpublished data,” Ex. 65 (Telzer Rebuttal Rep.) ¶ 151, while at the same time testifying that her opinions are based on “the totality of the research that [she] ha[s] done.” Ex. 58 (Telzer MDL Dep.) 19:15-18.

Dr. Telzer cannot disclaim reliance on her own unpublished “objective social media use data” to bypass the production requirements while still offering conclusions and findings about that data. Because she has not produced all of her data—part of “the totality of the research” on which her opinions are based—the Court must exclude her opinions about smartphone and social media use during the school day. Defendants have not had an opportunity to review the full dataset or rebut Dr. Telzer’s opinions about this data. *See* Fed. R. Civ. Pro. 26(a)(2)(B)(ii); *Olson v. Montana Rail Link, Inc.*, 227 F.R.D. 550, 552–53 (D. Mont. 2005) (excluding “any opinion or evidence based on undisclosed data or testing” because the untimely disclosure “den[ied] [the defendant] the opportunity to effectively rebut [the expert’s] conclusions”).

e) Dr. Telzer Has No Basis for Her Opinion That Students Are Using YouTube for “Non-Educational Purposes.”

Dr. Telzer has no basis for her opinion (first offered in her rebuttal report) that “[w]hile platforms like YouTube can have educational value, we know from research that many students primarily engage with it for non-educational purposes, even during school.” Ex. 65 (Telzer Rebuttal Rep.) ¶ 132. This

opinion about *how* students use YouTube is nothing more than an unsupported assumption. Other than the Common Sense Media Report, which “cannot tell us exactly what content youth saw on their phones,” Ex. 58 (Telzer MDL Dep.) 193:16-194:11, Dr. Telzer has not cited, and could not identify at her deposition, any other basis for this opinion. *See id.* at 195:10-20 (could not name any other “nationally representative surveys”); *id.* 195:1-196:7 (same for “peer-reviewed research”); *id.* 196:16-21 (same for “growing body of literature”); *id.* 196:22-198:14 (same for her “own empirical research”). As far as her own research involving a small cohort of students at an unnamed school district in North Carolina, Dr. Telzer does not even know if YouTube was part of the curriculum or if students were using YouTube for classroom work. *See* Ex. 58 (Telzer MDL Dep.) 201:9-202:10; *see also id.* 203:6-16. Having failed to offer any basis for this opinion, the Court should exclude her *ipse dixit*.

f) Dr. Telzer Does Not Offer Reliable Opinions (Opinion 3) Specific to Any Platform.

Plaintiffs challenge the design of five specific platforms and claim that each causes mental health harms. Dr. Telzer needed to—but did not—opine that the features of Facebook, Instagram, TikTok, Snapchat, and YouTube each can cause the injuries alleged in this litigation. *Sanderson v. Int’l Flavors & Fragrances, Inc.*, 950 F. Supp. 981, 987 (C.D. Cal. 1996) (explaining expert testimony must prove that each defendant caused plaintiff’s injury). Dr. Telzer’s own research acknowledges that the “specifics of social media use” may “divergently impact” adolescents. Ex. 57 (Telzer JCCP Dep.) 406:4–407:13; 493:13–495:1; *see also id.* at 571:20–573:1 (recognizing that the predominant use of Snapchat, messaging, “could be leveraged to support increased social connectedness”). Yet Dr. Telzer’s opinions are not based on an examination of those platforms or their specific features. In fact, she acknowledges that her research does “not necessarily look[] at a specific feature of a specific platform” but instead examines an undefined group of online apps she calls “social media.” *See, e.g.,* Ex. 57 (Telzer JCCP Dep.) 565:22–566:23; Ex. 58 (Telzer MDL Dep.) 75:2–16 (acknowledging she did not differentiate between Instagram Messenger and Instagram).

g) Dr. Telzer Cannot Opine About Internal Company Documents (Opinions 1-2) That She Has No Expertise Or Context To Interpret.

Underscoring the lack of rigor, Dr. Telzer relies on Defendants’ internal documents to support her

feature-specific opinions. *See* Ex. 56 (Telzer Rep.) ¶¶ 123–138. That is improper: these documents are not peer-reviewed literature capable of supporting claims about causation, nor do they purport to be. *See, e.g., Apple, Inc. v. Samsung Elecs. Co.*, 909 F. Supp. 2d 1147, 1156 (N.D. Cal. 2012) (concluding that “[e]ven if the survey is taken at face value, it does not establish a causal nexus” when not tied to the relevant legal standard). Other “studies” merely reflect the thoughts and impressions of company employees. *See, e.g.,* Ex. 56 (Telzer Rep.) ¶¶ 133 n.10 (describing a defendant’s internal company document as a “stud[y]” despite it being a list of bullet points). Dr. Telzer admits that she has not and does not rely on these types of internal company documents in her academic work. *See* Ex. 57 (Telzer JCCP Dep.) 125:15–21, 628:15–18. The problems with Dr. Telzer’s use of company documents are all the more acute because, like her approach to scientific literature, she “cherry-pick[s]” documents and snippets of documents, “undermin[ing] principles of the scientific method [by] ... applying methodologies (valid or otherwise) in an unreliable fashion.” *In re Onglyza (Saxagliptin) & Kombiglyze (Saxagliptin & Metformin) Prods. Liability Litig.*, 93 F.4th 339, 347 (6th Cir. 2024) (cleaned up). For example, she cites documents only for the potential downsides of social media, ignoring benefits described in the same document and not weighing the benefits versus the risks. *See* Ex. 57 (Telzer JCCP Dep.) 581:23–582:12 (omitting part of document stating that “[o]nline connections can ease transition to face-to-face interaction”). Dr. Telzer repeatedly quotes at length from company documents without any analysis. *See, e.g.,* Ex. 56 (Telzer Rep.) ¶¶ 125 (“[O]ne Meta document noted that ‘[u]ser research indicates unwanted photos ... are a problem for teens’”); Ex. 57 (Telzer JCCP Dep.) 121:8–15, 122:19–23, 538:4–9. But the jury is equally equipped to read Defendants’ documents and decide what inferences to draw; expert testimony is not required.

8. Dr. Twenge [PI/SD, AG]

Dr. Jean Twenge is a social psychologist and public advocate against social media. She opines in this litigation that “social media use” causes “low psychological well-being in adolescents” based on a causation analysis purporting to apply the Bradford Hill criteria to the totality of the relevant scientific

evidence. Ex. 71, Expert Report of Dr. Jean Twenge (“Twenge Rep.”) ¶¶ 2–7.³³ Her testimony is unreliable and should be excluded in its entirety because (1) she concedes that third-party content plays a critical role in her purported causal path but admits she does not and cannot separate the effects of content from the effects of platform features; (2) she fails to follow Bradford Hill’s fundamental methodological requirement of rigorously explaining the weight she attached to each criteria; (3) her catchall causal analysis lumps together all “social media use” as a singular exposure and a patchwork of mental health measures as a single outcome under the “umbrella” of “low psychological well-being” without any analysis or support for this approach; and (4) she admits she cannot determine the portion of purported harms caused by social media as opposed to other causal factors she herself claims exist, such as increased use of smartphones or digital media.

Dr. Twenge’s report discusses select studies that she groups into four categories: time-series (*i.e.*, ecological) studies, Ex. 71 (Twenge Rep.) ¶¶ 15–19, 25–60; correlational (*i.e.*, cross-sectional) studies, *id.* ¶¶ 20, 61–79, longitudinal studies, *id.* ¶¶ 21, 80–86, and randomized experiments, *id.* ¶¶ 22, 87–93. Of these, Dr. Twenge concedes that only randomized experiments can prove “scientific causation,” Ex. 73, Transcript of Dr. Jean Twenge September 17–18, 2025 Deposition (“Twenge MDL Dep.”) 310:15–311:1, but she acknowledges there have never been any such experiments performed on adolescent social media use, *see* Ex. 71 (Twenge Rep.) ¶¶ 22, 87–90. In her causal analysis, Dr. Twenge does not assign different weights to these types of studies according to their contrasting designs and limitations. *See, e.g., id.* ¶¶ 94–107.

Dr. Twenge claims to arrive at her causation opinion by applying “the Bradford Hill criteria for establishing causality” to the “totality of the evidence” but only included select studies discussed in her report. Ex. 71 (Twenge Rep.) ¶¶ 7, 23, 94–107. Remarkably, this litigation reflects Dr. Twenge’s first attempt to perform a Bradford Hill analysis. Ex. 74, Transcript of Dr. Jean Twenge June 26, 2025 Deposition (“Twenge JCCP Dep.”) 319:20–320:15. In fact, she had not even heard of the Bradford Hill criteria until earlier “this year,” when she “learned about it by reading a Substack post” by another of

³³ Dr. Twenge also submitted an MDL AG Report similar to the MDL PI/SD Report discussed in this motion. *See* Ex. 72.

1 Plaintiffs’ general causation experts, Dr. Anna Lembke. *Id.* The Substack post, which attempts to show
 2 how a Bradford Hill analysis could apply to social media use and adolescent mental health, makes clear it
 3 is merely a “brief primer” that cannot establish a causal relationship. Ex. 75 (Lembke Substack Post) at
 4 2, 5. The Substack post explicitly cautioned that the authors were “*not* using this post to claim that a
 5 *causal* relationship has been definitively established.” *Id.* at 2 (emphases added). It also explicitly
 6 cautioned that it reflected neither “an exhaustive review of the criteria nor a complete analysis of any one
 7 criterion,” as establishing causation through Bradford Hill “would involve *a lot more work*, since, for
 8 example, all relevant studies and available data need to be considered to properly evaluate the Bradford
 9 Hill criteria.” *Id.* at 2, 5 (emphases added). Despite these express warnings, Dr. Twenge’s Bradford Hill
 10 analysis here merely parrots that Substack post’s incomplete “primer,” without the comprehensive
 11 additional work the Substack post acknowledged would be necessary. *Compare id.*, with Ex. 71 (Twenge
 12 Rep.) ¶¶ 94–107.

13 **a) Dr. Twenge Fails to Disaggregate the Impacts of Third-Party Content**
 14 **And Protected Published Features.**

15 Like all of Plaintiffs’ experts, Dr. Twenge does not provide *any* opinion as to whether the at-issue
 16 features of Defendants’ platforms are capable of causing Plaintiffs’ alleged harms, independent of third-
 17 party content or publishing features that this Court has already held are protected by Section 230 and the
 18 First Amendment. *See generally* Ex. 71 (Twenge Rep.); Omnibus Section 230 *Daubert* Motion at 8–12.
 19 To the contrary, Dr. Twenge admitted that when it comes “to actually separate[ing] out the impact of the
 20 content on social media from the features,” she is “not sure how that could be done” and “some of the
 21 harm may be driven by content.” Ex. 74 (Twenge JCCP Dep.) 455:22–457:16. By Dr. Twenge’s own
 22 admission, any harm she attributes to spending time on social media may be caused by the third-party
 23 content a person viewed during that time. *See, e.g., id.* 483:1–3 (“Did any of the studies that you rely on
 24 control for the effect of content? A. Not that I recall.”); *id.* 455:22–457:16 (conceding that “some of the
 25 harm may be driven by content”). And she further admitted she “cannot put a specific percentage” on
 26 “what percentage of the rise in teen depression,” “suicidality,” or “decline in teen hours slept” “is
 27 attributable to social media through a mechanism unrelated to content.” Ex. 73 (Twenge MDL Dep.)
 28 411:18–414:1.

b) **Dr. Twenge Disregards the Methodological Requirements for Bradford Hill/Totality of the Evidence Causation Analyses.**

Dr. Twenge failed to conduct the type of Bradford Hill analysis accepted in scientific practice. *See* Ex. 71 (Twenge Rep.) ¶¶ 7, 23, 94–107. Her rationale for doing so is her belief that she was not required to apply the same “methodological rigor” here because “there is a difference between scientific causation and general causation in court.” Ex. 73 (Twenge MDL Dep.) 306:23–309:20. The law, however, is directly to the contrary: it is the Court’s critical gatekeeping role under Rule 702 “to make certain that an expert ... employs in the courtroom the same level of intellectual rigor that characterizes the practice” in the field outside of court. *E.g., In re Incretin*, 524 F. Supp. 3d at 1040–41 (quoting *Kumho Tire*, 526 U.S. at 152); *Rosen v. Ciba-Geigy Corp.*, 78 F.3d 316, 319 (7th Cir. 1996) (“Law lags science; it does not lead it.”). In fact, an expert applying Bradford Hill must “rigorously explain how they have weighted the criteria” and apply “the individual criteria” with “proper rigor”; otherwise, it becomes a “virtually standardless” methodology susceptible to “reverse-engineering a theory to fit the desired outcome.” *In re Mirena Ius Levonorgestrel-Related Prods. Liab. Litig. (No. II)*, 341 F. Supp. 3d 213, 247–48 (S.D.N.Y. 2018) (quotation marks omitted), *aff’d*, 982 F.3d 113 (2d Cir. 2020) (per curiam); *see, e.g., In re Paraquat Prods. Liab. Litig. (Paraquat)*, 730 F. Supp. 3d 793, 841–42 (S.D. Ill. 2024); *Acetaminophen*, 707 F. Supp. 3d at 357; *see also In re Incretin*, 524 F. Supp. 3d at 1043–44 (explaining these requirements apply to any “totality of evidence” causal analysis when excluding expert opinion that did not explain weight assigned to criteria used). Yet Dr. Twenge never explains the weight that she attaches to any of the Bradford Hill criteria or the relationship of each criterion to her analysis. *See* Ex. 71 (Twenge Rep.) ¶¶ 94–107. She also refused to say how she weighed the four categories of studies she considered, claiming she “could not put a number on it, or really answer that question, because they’re all different types of evidence.” Ex. _ (Twenge JCCP Dep.) 118:14–23; *see also id.* 379:18–380:1.

In addition to Dr. Twenge’s wholesale failure to explain “which factors drive h[er] general causation opinion,” *Paraquat*, 730 F. Supp. 3d at 841, her analysis becomes particularly unsound (and results-driven) given that her causal opinions rest on correlational or cross-sectional studies she has admitted do not and cannot establish causation from a scientific perspective, *see, e.g.,* Ex. 74 (Twenge JCCP Dep.) 102:24–103:2, 217:21–218:9, 251:12–20; Ex. _ (Twenge MDL Dep.) 310:15–311:1; Ex. 76

(Twenge & Hamilton 2022) (“Of course, correlational studies like these cannot determine causation (for example, whether technology use causes depression, depression causes technology use, or third variables cause both).”); Ex. 77 (Twenge & Farley 2020) (similar). In fact, when attempting to explain away her statement in a 2025 academic publication that “causation cannot be proven” between digital technology and an increase in mood disorders among adolescents, Dr. Twenge claimed that editors routinely require such a disclaimer because “any type of study that is not experimental” cannot prove causation from a “scientific causation” perspective. Ex. 73 (Twenge MDL Dep.) 306:23–309:20. As discussed above, the rules are no different here. Her superficial and cribbed Bradford Hill analysis lacks the basic methodological requirements to support her leap from purported correlation to definitive causation.

c) Dr. Twenge Fails to Analyze the Specific Exposures and the Specific Outcomes at Issue in Drawing Causal Conclusions.

Dr. Twenge’s opinions should also be excluded because she fails to define in any meaningful way the exposures and outcomes she analyzes, much less do so to appropriate scientific standards. Federal courts consistently exclude causal opinions as unreliable where the expert’s analysis fails to isolate and examine the relationship between the specific exposure and the specific outcome (or disease) at issue. *See, e.g., Joiner*, 522 U.S. at 146–47 (affirming exclusion of general causation expert where underlying studies failed to isolate and examine exposure to the specific agent at issue); *Hollander v. Sandoz Pharms. Corp.*, 289 F.3d 1193, 1207–09 (10th Cir. 2002); *Rider v. Sandoz Pharms. Corp.*, 295 F.3d 1194, 1200–01 (11th Cir. 2002); *Acetaminophen*, 707 F. Supp. 3d at 342. In particular, “conducting a Bradford Hill analysis on multiple associations at once” can “obscure[] limitations in the scientific literature,” rendering it unreliable. *Id.* at 339. Dr. Twenge’s all-encompassing Bradford Hill analysis is a prime example of this methodological flaw.

“Low psychological wellbeing” is not a valid outcome. Dr. Twenge’s single causal analysis purports to address an outcome of “low psychological well-being”—an “umbrella” term she uses to lump together myriad, diverse measures of mental health, including life satisfaction, happiness, depression, anxiety, loneliness, self-esteem, self-harm, suicide attempts, suicidal thoughts, and suicide. *See, e.g.,* Ex. 74 (Twenge JCCP Dep.) 120:11–121:10, 324:10–325:1; Ex. 71 (Twenge Rep.) ¶ 7; *see also generally id.* ¶¶ 25–93. Dr. Twenge claims her “umbrella” approach is appropriate because, “generally

speaking,” some of these measures “correlate pretty highly with each other.” Ex. 74 (Twenge JCCP Dep.) 119:12–120:9. Dr. Twenge thus offers a “‘leap of faith’ supported by little more than the fact that” this assortment of conditions could broadly fall under what is “commonly called” mental health. *Rider*, 295 F.3d at 1202. The court in *Acetaminophen* rejected this very approach, holding that a “transdiagnostic” Bradford Hill analysis combining two distinct clinical disorders (Autism Spectrum Disorder and Attention Deficit/Hyperactivity Disorder) lacked reliability, as such a methodology has not “been subjected to peer review and publication either generally or as applied to ASD and ADHD,” has not “been tested,” and “has no established error rate or published standards.” 707 F. Supp. 3d at 362–67. Dr. Twenge’s *ipse dixit* offers no supporting data—much less the rigorous analysis—to justify a causal analysis that lumps together not just two distinct clinical outcomes, but a wide array of mental health measures as a singular outcome. That critical analytical gap is fatal to Dr. Twenge’s causation opinions. *See, e.g., Klein v. Meta Platforms, Inc.*, 766 F. Supp. 3d 956, 963 (N.D. Cal. 2025) (excluding expert opinion for lack of reliability where a “necessary [] step in [expert’s] theory of ... injury” was “without basis” and “rest[ed] on guesswork”).

This error is compounded by the fact that Dr. Twenge relies heavily on scientific studies that measure outcomes using participants’ self-reported screening scales, rather than clinical diagnoses. Such studies are not a reliable basis to draw causal conclusions about clinical diagnoses for the specific disorders at issue here. Dr. Twenge candidly admitted that the screening tools used in the studies cannot determine if the study participants actually had a specific mental health disorder. Ex. 74 (Twenge JCCP Dep.) 128:4–129:4. Instead, for that to be determined, “the next step would be ... [a] clinical interview to see if it would be – rise to the level of a DSM diagnosis.” *Id.* 129:1–4. Dr. Twenge even conceded that the studies she relies on were “not ... designed to” actually assess whether individuals had specific mental health disorders. *Id.* 129:24–130:4. Despite admitting these significant limitations, Dr. Twenge nevertheless relied on screening scales as a substitute for clinical diagnoses without any analysis bridging the “next step.” This provides yet another basis to exclude Dr. Twenge’s causation opinions. *See, e.g., Williams v. BP Expl. & Prod. Inc.*, 2024 WL 340237, at *6 (S.D. Miss. Jan. 30, 2024) (Bradford Hill analysis “unreliable” where expert relied on “self-reported, acute sinus symptoms, not medical diagnoses of [the] chronic sinus conditions”), *aff’d*, 143 F.4th 593 (5th Cir. 2025).

Dr. Twenge’s admissions demonstrate the unreliability of treating all “social media use” as a singular exposure. Dr. Twenge’s analysis also fails to adequately define the “exposure” that she claims causes harm. Ex. 71 (Twenge Rep.) ¶¶ 2–7; *see also generally id.* ¶¶ 25–93. She frames that exposure as “social media use,” but acknowledged she has no concrete definition of that term, and, to make matters worse, mashed together studies that used different definitions—including different subsets of Defendants—with no attempt to address how these different definitions impact the conclusions she could draw. Dr. Twenge claimed that “social media use” for purposes of her report and opinions is “mostly” defined by the underlying survey “datasets,” Ex. 74 (Twenge JCCP Dep.) 437:1–9; but conceded that “[s]ocial media is defined somewhat differently from one dataset to another,” Ex. 71 (Twenge Rep.) ¶ 19; and admitted that use of certain Defendant-platforms “most likely” would *not* be considered “social media use” under the key survey datasets used in her own work and most studies she relies on (*e.g.*, the MTF and the MCS surveys), Ex. 74 (Twenge JCCP Dep.) 463:5–465:5, 471:8–472:12; *see also* Ex. 73 (Twenge MDL Dep.) 200:11–21, 208:13–209:1 (testifying that “YouTube, and possibly TikTok,” would be categorized as video watching—not social media use—“by [her] interpretation” of the MTF survey questions). Dr. Twenge conceded it was therefore “hard to say” which portions of her report even apply to which Defendant-platforms but recognized at least certain portions of her reports would not apply to all Defendant-platforms. Ex. 74 (Twenge JCCP Dep.) 463:5–467:1, 465:10–24, 466:6–467:1, 467:22–468:3, 350:15–23, 379:3–7; Ex. 73 (Twenge MDL Dep.) 219:14–25 (“[T]he data that you use in [] section [2.3 of the rebuttal report] to discuss trends in social media use would not necessarily reflect trends in YouTube use? [A.] Hard to say. You would have to do that specifically, although the graph right above paragraph 25 does look at internet use. And depending on how that question is worded, that could certainly include YouTube videos.”). Dr. Twenge’s inability to provide a concrete, consistent definition of the “exposure” on which she focused renders her opinions inscrutable and subject to exclusion. Her “nebulous definition” of the critical term “social media use” makes it “impossible” for the Court or a jury “to figure out the precise contours of h[er] opinion,” rendering it inadmissible. *Paraquat*, 730 F. Supp. 3d at 827-29 (citing *Frazier*, 387 F.3d at 1265).

This limitation is underscored further by Dr. Twenge’s decision to analyze all of Defendants’ platforms together rather than performing any platform-by-platform analysis. While Dr. Twenge claimed

that it was appropriate to lump together all “social media use” in her single causation analysis “because there’s a good amount of overlap between the platforms,” Ex. 74 (Twenge JCCP Dep.) 119:12–24, that assertion is unsupported by any reliable methodology and belied by Dr. Twenge’s own admissions. She conceded the platforms “operate differently”; “have different specific features”; “teens, thus, use the platforms differently”; and it is “hard to say” whether the different specific features have “different effects” on adolescent users. *Id.* 450:16–451:21; *see also id.* 449:19–450:15 (admitting the only study she reviewed that addressed use across different platforms concluded “the impact of social media is ... platform specific,” which she agreed is the “proper interpretation”). Dr. Twenge claimed that assessing the effects of specific platform use “is a place where, you know, it would be great to know more and have more studies that have looked platform specific.” *Id.* 451:14–21. That does not justify Dr. Twenge’s treating all social media use as an indistinguishable monolith. A “courtroom is not the place for scientific guesswork, even of the inspired sort.” *Rosen*, 78 F.3d at 319.³⁴

d) Dr. Twenge Admits She Cannot Determine the Percentage of Purported Harms Caused by Social Media Use.

Dr. Twenge separately opines that “[t]ime series studies on trends in adolescent mental health strongly support social media as a key contributor to increases in adolescent depression, unhappiness, loneliness, self-harm, and suicide.” Ex. 71 (Twenge Rep.) ¶ 2. And she details the time series (or ecological) studies that supposedly support this opinion in her opening and rebuttal reports. *See id.* ¶¶ 24–60 (“No other variable fits the generational trend as completely or as well as social media *and smartphone*

³⁴ Dr. Twenge’s opinions as to Snap provide another example of how her outcome-driven methodology lacks any defined parameters, including because she fails to account for the specific ways in which Snapchat is actually used. Dr. Twenge’s testimony made clear that she lacks even basic familiarity with Snapchat and therefore has no basis to apply her general conclusions about “social media” to that platform. She admitted that she has never used Snapchat, is unaware that it opens to a camera used for direct communication, and cannot even describe the different sections of the app. Ex. 74 (Twenge JCCP Dep.) 443:9–444:16. Nor does she know even basic information about how Snapchat is actually used, such as how much time users spend messaging with friends or using any other features of the app. *See id.* 444:20–445:20. Further, Dr. Twenge did not cite any internal Snap documents to support her opinions, nor did she identify any study cited in her report that reached any negative conclusions specific to Snapchat. *Id.* 455:7–11. To the contrary, she acknowledged that the only study she cited in her report specifically discussing Snapchat found that “[s]pending time on Snapchat positively affected friendship closeness and well-being.” *Id.* 447:9–448:25.

use.” (emphasis added)); Ex. 78, Expert Rebuttal Report of Dr. Jean Twenge (“Twenge Rebuttal Rep.”) ¶¶ 3–55. But at deposition, Dr. Twenge repeatedly conceded that she cannot determine what portion of the purported decline in adolescent mental health measures was caused by “social media” rather than “smartphones” or other factors because “[t]hat’s just not how this research works.” Ex. 73 (Twenge MDL Dep.) 341:17–342:3, 342:13–14; *see, e.g., id.* 153:4–11 (“And are you able to say what percentage of the increase in depression and anxiety is caused by lack of real world freedom versus what percentage is caused by the growth of social media and smartphones? [A.] That’s generally not how these research studies work.”); *id.* 341:17–344:10; *id.* 347:9–17 (“Can you tell me what percentage of the increase in depression you believe you’ve observed since 2012 is due to social media as opposed to other forms of digital media? [A.] I cannot answer that. That’s not the way this research works.”); *id.* 350:6–12; *id.* 362:11–24; *id.* 412:14–21. In other words, Dr. Twenge lacks any basis to say that social media use is a “key contributor” to the symptoms, feelings or conditions that she attributes to social media use. Dr. Twenge’s admissions reveal that her claim is nothing more than speculative guesswork. *See, e.g., Engilis*, 2025 WL 2315898, at *9–10. This opinion should be excluded.

9. Dr. Hoover [SD-only]

Despite her 25 years of work in the school mental health field, Dr. Hoover could not identify at her deposition a single article she has authored, or professional presentation she has given, about the impact of students’ use of social media on schools. *See* Ex. 79 (Hoover Dep.) 798:8–800:24. Nevertheless, in this litigation, Dr. Hoover offers general causation opinions about the purported effects of social media on students and schools.³⁵

Dr. Hoover’s general causation opinions are that (1) “harms associated with students’ social media use include” increased distraction and decreased focus, erosion of in-person social skills, diminished teaching effectiveness, and detrimental effects on student mental health (specifically, sleep disruptions, anxiety, depression, self-harm, and body dissatisfaction); and (2) “the cumulative negative impacts of

³⁵ Dr. Hoover also offers specific causation opinions about the effects of social media on the Plaintiff school districts and opinions about “strategic plans” to mitigate the alleged negative impacts of student social media use. Defendants address those opinions in their Motion to Exclude Testimony of School District Experts.

1 student social media use on school districts” have required “schools to expend and redirect already limited
 2 resources,” and schools are “increasingly tasked with” addressing students’ social media use by providing
 3 mental health services, educating students on responsible use, managing distraction, and navigating
 4 strained family-school partnerships. Ex. 80 (Hoover Rep.) ¶¶ 3–5; *see also id.* at ¶¶ 30–84, 123–26.

5 These opinions are not helpful to the jury and do not reflect a reliable methodology for establishing
 6 causation, and therefore must be excluded under Rule 702. *First*, Dr. Hoover did not evaluate whether
 7 *Defendants’ at-issue conduct* (as opposed to social media writ large, third-party content, or protected
 8 publishing activities) can cause harm to students or schools. *See, e.g.,* Omnibus Section 230 *Daubert*
 9 Motion at 6. *Second*, she did not apply any methodology to bridge the gap between studies finding a mere
 10 *association* between generalized social media use and harms and her causal conclusions.

11 **a) Dr. Hoover Has Not Evaluated Defendants’ At-Issue Conduct.**

12 Dr. Hoover’s general causation opinions are about the impacts of “social media use,” not the
 13 effects of Defendants’ at-issue conduct, on students’ mental health and on schools. *See* Ex. 80 (Hoover
 14 Rep.) ¶¶ 3–5, 123–26. Rather than relying on studies that examine whether Defendants’ actionable
 15 conduct can cause Plaintiffs’ alleged harms, Dr. Hoover relies on studies that examine the relationship
 16 between cell phone use, social media use, or general use of one or more Defendant platforms (without
 17 controlling for confounders such as content or protected features) and various outcomes. *See, e.g.,* Hoover
 18 Rep. ¶ 74 (characterizing study as finding “that frequent viewing and uploading of photos on social media
 19 led to a greater likelihood of body dissatisfaction and disordered eating behaviors among adolescents”);
 20 *id.* ¶ 59 (citing article titled “*Cellphones Turned my Teaching Career from ‘Awesome’ to Exhausting*”);
 21 *id.* ¶ 70 (characterizing study as finding “that youth who spend more than 3 hours per day on social media
 22 double their risk of poor mental health outcomes, including anxiety, depression, and self-harm”). Dr.
 23 Hoover cannot possibly offer opinions specific to Defendants’ at-issue features because she did not
 24 specifically evaluate them. Ex. 79 (Hoover Dep.) 153:14–154:1 (admitting she did not “look[] at all of
 25 the specific features across every platform and the distinctions between them,” is not opining on “the
 26 details of each of the defendant platforms’ features,” and instead relied on other experts to “do a deeper
 27 dive into” features). Nor could she identify at her deposition a single study that looked at the effects of
 28 Defendants’ at-issue features and controlled for content. *Id.* at 182:8–184:14, 282:1–5. Dr. Hoover’s

1 failure to assess the actual general causation question in this case renders her opinions inadmissible under
2 Rule 702. *See* Omnibus Section 230 *Daubert* Motion at 6.

3 In her case-specific rebuttal reports, Dr. Hoover makes a handful of references to platform
4 “features,” but those references only underscore her failure to consider Defendants’ *at-issue* conduct. For
5 example, she claims: “Social media’s immersive design features (such as infinite scroll, push notifications,
6 and public social ranking), and persistent access to peer evaluation create a fundamentally different
7 category of classroom distraction.” Ex. 81 (Hoover Tucson Reb. Rep.) ¶ 171. But she cites no sources in
8 support, and, more importantly, the “features” she mentions are those that cannot provide a basis for
9 liability. *See* Omnibus Section 230 *Daubert* Motion at § II.A. Dr. Hoover also refers to “features” that
10 invoke protected publication of third-party content, not Defendants’ *at-issue* conduct. *See* Ex. 81 (Hoover
11 Tucson Reb. Rep.) ¶ 21 (contending, without citing any source, that student use of “social media” includes
12 “scrolling, posting, messaging, and consuming videos and peer commentary, activities directly tied to the
13 design features of social media that contribute to dysregulation, sleep disruption, and mental health
14 strain”). Dr. Hoover’s methodology is incapable of answering the general causation questions posed in
15 the school district cases—whether *Defendants’ at-issue conduct* can cause harm to students that
16 necessarily, and in turn, harms school districts. Her opinions should therefore be excluded.

17 **b) Dr. Hoover Offers No Reliable Methodology for Drawing Causation**
18 **Conclusions.**

19 The studies on which Dr. Hoover relies do not support her causation opinions. At most, some
20 conclude an *association* exists between “social media” and certain negative outcomes. For those studies,
21 Dr. Hoover has not reliably applied a methodology to bridge the gap between association and causation.

22 Even the studies that Dr. Hoover cites examining “social media use” generally do not conclude
23 that it *causes* any harms. Indeed, numerous studies cited by Dr. Hoover *expressly* state that they do not
24 establish causation—disclaiming the very point for which Dr. Hoover has cited them.³⁶ While Dr. Hoover

25 _____
26 ³⁶ *See, e.g.,* Ex. 82 (Pew Research Center, *Teens, Social Media and Mental Health* at 5) (“There are
27 growing debates about social media’s impact on youth mental health. This survey seeks to surface teens’
28 and their parents’ perspectives on this topic, not to supply evidence or establish causality.”) (cited in
Hoover Rep. ¶ 68 n.49); Ex. 83 (Jamil et al., *Impact of Social Media on Academic Performance* at 4)
(continued...)

sometimes correctly refers to studies finding “associations” between social media and harms, *e.g.*, Ex. 80 (Hoover Rep.) ¶¶ 4, 32, 72, she leaps from “association” to a causal conclusion, *id.* ¶ 83, with no identified, reliable basis. But “an association does not equal causation, and it is the duty of scientists to rigorously analyze the data to determine whether or not an association is causal.” *Henricksen v. ConocoPhillips Co.*, 605 F. Supp. 2d 1142, 1175 (E.D. Wash. 2009); *see also Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997) (a court may not “admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert”).

The only “methodology” Dr. Hoover invokes is a general reliance on her “training” and “experience,” as “informed by scientific literature on the subject.” *See* Ex. 80 (Hoover Rep.) ¶¶ 25–28. But that explanation does not satisfy Rule 702’s requirement that a witness “explain how that experience leads to the conclusion reached, why that experience is a sufficient basis for the opinion, and how that experience is reliably applied to the facts.” *See* Fed. R. Evid 702 advisory committee’s note to 2000 amendments (“The trial court’s gatekeeping function requires more than simply ‘taking the expert’s word for it.’” (quoting *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 43 F.3d 1311, 1319 (9th Cir. 1995))). An expert must do more than simply identify studies finding mere association. That’s just step one. Step two requires her to apply a reliable methodology for drawing a causal conclusion from such studies—and describe the steps she followed to reach a causal conclusion. *See, e.g., In re Zantac (Ranitidine) Prods. Liab. Litig.*, 644 F. Supp. 3d 1075, 1168 (S.D. Fla. 2022) (explaining the steps that an expert must take and describe in order to offer an admissible causal opinion when using a “weight of the evidence”

(“However, the current study has some limitations which include its cross-sectional design, which impedes establishing the causal direction of the observed associations, and the use of self-reported questionnaires.”) (cited in Hoover Rep. ¶ 69 n.50); Ex. 84 (Tørmøen et al., *A Nationwide Study on Time Spent on Social Media and Self-Harm Among Adolescents* at 6) (“There are limitations in a cross-sectional study relying on self-report, such as recall bias, not being honest and of course, in a cross-sectional study, conclusions about mediation or causality cannot be drawn.”) (cited in Hoover Rep. ¶ 69 n.51); Ex. 85 (Chao et al., *TikTok Use and Psychosocial Factors Among Adolescents: Comparisons of Non-Users, Moderate Users, and Addictive Users* at 8) (“First, due to its cross-sectional nature, the study could not establish a causal relation between SVU and psychosocial factors. ... The study relied heavily on self-report measurements and did not investigate the underlying mechanisms of associations.”) (cited in Hoover Rep. ¶ 73 n.65); Ex. 86 (Dane et al., *The Social Media Diet: A Scoping Review to Investigate the Association Between Social Media, Body Image and Eating Disorders Amongst Young People* at 19) (“First, due the cross-sectional nature of most included studies and generally ‘moderate’ quality, causation between social media usage and outcomes cannot be presumed.”) (cited in Hoover Rep. ¶ 74 n.66).

methodology). Dr. Hoover failed to do so, and her general causation opinions therefore must be excluded.

Perhaps in recognition of this methodological problem, Dr. Hoover contended for the first time at her deposition that she used “some of the criteria in the Bradford Hill kind of mechanism.” Ex. 79 (Hoover Dep.) 244:1–7. A Bradford Hill analysis is one way that experts may attempt to bridge the gap between studies finding a mere “association” and opinions on causation. *See In re Viagra (Sildenafil Citrate) & Cialis (Tadalafil) Prods. Liab. Litig.*, 424 F. Supp. 3d 781, 794 (N.D. Cal. 2020) (explaining that causation is often assessed through Bradford Hill criteria, a set of “nine ‘viewpoints’ now generally accepted to be relevant to assessing causation” (citation omitted)). As a threshold matter, any Bradford Hill analysis offered by Dr. Hoover is inadmissible because she did not disclose such an analysis in any of the 14 reports she submitted for the six bellwether Districts, nor did she even use the phrase “Bradford Hill” in any of her reports. *See Fed. R. Civ. P. 26(a)(2)(B), 37(c)(1); Engilis v. Monsanto Co.*, 2025 WL 2315898, at *8 (9th Cir. Aug. 12, 2025) (excluding an expert opinion regarding the shortcomings of BMI as a measure of obesity because report did not mention BMI).

In any event, Dr. Hoover’s belated reference to the Bradford Hill framework during her deposition does not meet the Rule 702 standard. While Dr. Hoover stated that she used “some of the criteria in the Bradford Hill kind of mechanism,” Ex. 79 (Hoover Dep.) 244:1–7, she did not apply the Bradford Hill methodology in a reliable manner. She could not identify more than three of the nine Bradford Hill criteria. *Compare id.* at 261:1–20, *with In re Viagra*, 424 F. Supp. 3d at 794 (identifying nine criteria). She also could not explain how she weighed each of the criteria against the others. Ex. 79 (Hoover Dep.) 261:21–262:16. “[A] passing reference to the criteria does nothing to show that [the expert] has applied them reliably as required by Rule 702(d).” *Davis v. McKesson Corp.*, 2019 WL 3532179, at *27 (D. Ariz. Aug. 2, 2019); *see also In re Nexium Esomeprazole*, 662 F. App’x 528, 530 (9th Cir. 2016) (excluding opinion of general causation expert where his discussion of the Bradford Hill factors was “extremely thin,” and the expert “did not adequately explain how he inferred a causal relationship from epidemiological studies that did not come to such a conclusion themselves”). Moreover, even her belated and incomplete Bradford Hill analysis failed to study the pertinent question in this case: she admitted that she did not conduct any Bradford Hill analysis for any specific feature, *id.* at 263:20–264:21, and certainly did not perform a Bradford Hill analysis for the features at issue. Nor did she conduct any Bradford Hill analysis

1 for any specific platform, *id.* at 262:18–24, or for any of the harms she is alleging Defendants’ at-issue
 2 features caused, *id.* at 270:9–271:7. These errors are all the more problematic because, again, Dr. Hoover
 3 is claiming to infer causation from a hodge-podge of studies which themselves are not limited to analysis
 4 of Defendants’ actionable conduct.

5 Dr. Hoover also attempts to buttress her opinions by citing the expert reports of Plaintiffs’ other
 6 experts, Drs. Christakis, Mojtabai, Telzer, Lembke, Twenge, and Goldfield. Ex. 80 (Hoover Rep.) ¶¶ 4,
 7 37–81; *see* Ex. 79 (Hoover Dep.) 362:15–21 (explaining that she “generally ... would rely on the
 8 opinions” of other experts and only considered “some of the articles that some of” those experts included
 9 in their reports). Dr. Hoover’s failure to use a reliable methodology to support *her* opinions is not excused
 10 by her citation to *other* experts’ opinions. And, in any event, the opinions of the experts that Dr. Hoover
 11 relies upon fail for reasons explained in the sections of this motion addressing those experts.

12 **B. Plaintiffs’ Non-Retained Experts Should Not Be Permitted to Offer General** 13 **Causation Opinions**

14 **1. Mr. Béjar [PI/SD, AG]**

15 Arturo Béjar is a former Meta engineer who has leveraged his limited employment at Meta to
 16 become a public commentator about social media. He has no experience with TikTok, YouTube, and
 17 Snapchat.³⁷ In a demonstration of just how unmoored from serious scientific inquiry Plaintiffs’ general
 18 causation theory is, they now seek to use Mr. Béjar’s lay opinions about Meta’s platforms to support their
 19 claims about the scientific issue of whether Meta’s platforms are capable of causing mental health harms.
 20 Mr. Béjar’s testimony is inadmissible for two independent reasons: he is not qualified as an expert in
 21 general causation as to Meta’s platforms, and he lacks any reliable methodology. His personal views on
 22 social media should not be permitted to go to the jury in the garb of expertise.

23 On qualifications, Mr. Béjar has no education or training in medicine, psychology, neurology,
 24

25 ³⁷ Mr. Béjar’s disclosure and deposition confirms that Mr. Béjar is not offering any opinions as to the non-
 26 Meta defendants—nor could he, as a non-retained expert who has never worked for any of the non-Meta
 27 defendants and who lacks any specialized knowledge as to the non-Meta Defendants. To the extent Mr.
 28 Béjar later attempts to offer opinions as to the non-Meta defendants, that would be plainly improper given
 his lack of any experience with the non-Meta defendants as well as for all of the other reasons stated in
 this motion.

1 epidemiology, or statistics—or, in fact, any scientific discipline touching youth mental health. Nor does
 2 his limited work experience at Meta provide him with such experience or training. Quite simply, he is not
 3 qualified to opine about the scientific and medical issue of general causation, as Judge Kuhl found when
 4 excluding his testimony in the JCCP. *See* Ex. 2, Ruling Document on Defendants’ *Sargon* Motions, *Social*
 5 *Media Cases*, JCCP 5255 (Cal. Super Ct. Sept. 22, 2025) at 29-34.

6 On methodology, since he authored no report and is not a true expert, it is challenging to discern
 7 the methodology that underpins his purported general causation opinions. Moreover, the explanation
 8 offered regarding Mr. Béjar’s “methodology” has shifted over time and reveals that there is actually no
 9 “methodology” at all. For example, Mr. Béjar claimed that his methodology was an activity well within
 10 the ability of any layperson and required no specialized expertise: opening Instagram, creating fake
 11 accounts, and looking at the content shown to those fake accounts. Later, in defending Mr. Béjar’s
 12 opinions, the JCCP Plaintiffs offered even less by way of methodology and argued that Mr. Béjar was just
 13 offering lay opinions, supported by vague references to his “experience”. Neither is close to admissible
 14 as reliable expert methodology under Rule 702—indeed, there is *nothing* resembling a methodology as
 15 that concept is used in science or the law. He conducted no systematic review of any peer-reviewed
 16 literature on the subject, nor has he been the source of any such analysis.

17 **a) Mr. Béjar Is Not Qualified to Offer Opinions on General Causation.**

18 Originally deposed as a percipient witness, Plaintiffs later disclosed Mr. Béjar as a purported
 19 general causation “expert” who will testify about “[h]is personal knowledge and experience related to how
 20 design defects on Meta’s platforms can cause harm to minors,” including addiction through various
 21 features. Ex. 87, Plaintiffs’ Disclosure of Unretained Experts (“MDL Disc.”) at 8. Mr. Béjar is not
 22 qualified to offer this opinion – which is the heart of a general causation opinion in this case. For that
 23 reason, Judge Kuhl has held that Mr. Béjar “may not offer expert testimony on the question of whether
 24 use of social media platforms causes specific mental health harms.” Sept. 22, 2025, Ruling Document on
 25 Defendants’ *Sargon* Motions at 32–33, *Social Media Cases*, JCCP 5255 (Cal. Super Ct.).

26 An expert’s testimony must have “a reliable basis in the knowledge and experience *of the relevant*
 27 *discipline*” to be admissible. *Primiano v. Cook*, 598 F.3d 558, 565 (9th Cir. 2010) (emphasis added)
 28 (cleaned up). Mr. Béjar must possess qualifications “to answer the *specific* question presented.” *See*

1 *Leibfried v. Caterpillar, Inc.*, 701 F. Supp. 3d 774, 778 (E.D. Wis. 2023). So, to testify as an expert in
 2 general causation, Mr. Béjar must be “qualified as an expert by knowledge, skill, experience, training, or
 3 education” *in the issue of general causation*. Fed. R. Evid. 702. He is not.

4 Mr. Béjar has no education or training in medicine, psychology, neurology, epidemiology, or
 5 statistics—or, in fact, any scientific discipline touching youth mental health. He is not “qualified to
 6 assess” any clinical conditions because he is “not a clinician.” Ex. 88, Transcript of Arturo Béjar July 10,
 7 2025 Deposition (“Béjar JCCP Dep.”) 94:17–19. Mr. Béjar has a bachelor’s in mathematics and no other
 8 degrees. *See* Ex. 89, Transcript of Arturo Béjar April 7, 2025 Deposition (“Béjar MDL Dep.”) 28:8. Prior
 9 to working at Meta, Mr. Béjar worked at Electric Communities and then Yahoo! in roles not specific to
 10 child safety. *Id.* at 699:1–15, 715:2–8 (“Electric Communities did not have actual users, whether adults
 11 or minors”); 773:1–15 (“[W]e weren’t responsible for building [integrity] systems.”). Mr. Béjar was then
 12 hired as an engineer at Meta (then Facebook) in 2009 and left his full-time position in 2015; he never
 13 worked on Instagram. *Id.* at 774:20–775:5. During this time, he served as “senior engineer and product
 14 leader” for the Facebook Protect and Care Team. *Id.* at 37:22–24. This involved managing “engineering,
 15 product user research ... data analytics, design, and content.” *Id.* at 41:20–25. Between 2019 and 2021,
 16 Mr. Béjar was a part-time contract worker—averaging three to eight hours a week—working only with
 17 the Instagram Well-Being team. *Id.* at 785:2–24, 794:7–17. Since 2015, Mr. Béjar has not had a “full-
 18 time role focused on child safety” at any company. *Id.* at 780:1–5, 797:18–25. None of Mr. Béjar’s
 19 education, training, or work experience involved discerning the causes of mental health conditions in
 20 teens. Béjar lacks *any* scientific or medical education or experience that would permit him to opine about
 21 the scientific and medical issue of general causation. *See Morin v. United States*, 534 F. Supp. 2d 1179,
 22 1185 (D. Nev. 2005), *aff’d*, 244 F. App’x 142 (9th Cir. 2007) (holding that even “a licensed physician
 23 who has practiced ... for over 20 years” did not qualify as an expert to opine on “the causal link between
 24 jet fuel and cancer.”).

25 Mr. Béjar conceded his lack of relevant qualifications in his depositions. He testified that he
 26 always deferred “to external academic experts to their expertise and lifetime of work in the area” of teen
 27 mental health because his purportedly “core expertise is in” actually “building” the platforms, not anything
 28 to do with their mental health effects. Ex. 89, (“Béjar MDL Dep.”) 853:3–18; *see also* Ex. 88, (“Béjar

JCCP Dep.”) 85:6–86: 9. Mr. Béjar admitted he did not even “feel comfortable” or “qualified to assess” any clinical condition. Ex. 88, (“Béjar JCCP Dep.”) 94:10–19.

Mr. Béjar has tried to shore up his lack of qualifications by saying that he had conversations with his daughter (or other parents) about social media. *See* Ex. 89 (Béjar MDL Dep.) 73:7–74:9; Ex. 88, (“Béjar JCCP Dep.”) 139:2–4. Such conversations are not “beyond the common knowledge of the average layperson.” *United States v. Vallejo*, 237 F.3d 1008, 1019 (9th Cir. 2001). Indeed, Mr. Béjar himself acknowledged that being a parent does not qualify someone as an expert in “pro[v]ing a condition.” *See e.g.*, Ex. 88, (“Béjar JCCP Dep.”) 94:10–16.³⁸

Because Mr. Béjar is not qualified to opine on general causation, he is equally unqualified to opine that Defendants’ platforms are intended to or designed to cause “excessive use.” Whether a platform is capable of causing “addiction” or “excessive use” is just as much an opinion about issue of general causation as is an opinion about social media causing any other mental health condition (such as depression), and Mr. Béjar is just as unqualified to opine about that scientific and medical issue as he is to opine about it with respect to any other mental health issue. While Judge Kuhl differentiated between opinions about excessive use and other conditions to the extent that ruling is intended to encompass *expert* opinion it is, respectfully, error.³⁹ Judge Kuhl reasoned that Mr. Béjar had experience in “social media platform design” and safety, but it does not follow that, even if he were an expert in those areas, he can

³⁸ Mr. Béjar also claimed his opinions were based on five conversations, averaging an hour each, with parents of children who died by suicide, and potentially other unspecified conversations with parents that he could not elaborate on. *See* Ex. 88, (“Béjar JCCP Dep.”) 136:20–137:1; Ex. 89, (“Béjar MDL Dep.”) 856:4–857:18. He has no documentation of these conversations including who he spoke to or the substance of the conversations nor did he speak to any “treating physicians or counselors or therapists.” Ex. 88, (“Béjar JCCP Dep.”) 135:16–22. And those conversations are not, in any event, a substitute for a scientifically reliable method.

³⁹ Judge Kuhl concluded that Béjar was not qualified to opine on ‘the question of whether use of social media platforms causes specific mental health harms,’ but concluded that Defendants had not challenged his ability to opine ‘that Meta’s platforms were designed to and in fact do encourage ‘excessive use.’’ In fact, Defendants separately challenged Béjar’s design-related opinions in a separate Sargon motion submitted in connection with the second wave of Sargon motion practice that Judge Kuhl ordered in the JCCP. In any event, an opinion that Defendants’ platforms ‘were designed to and in fact do encourage ‘excessive use’ is indistinguishable from an opinion that those platforms were designed to and in fact do cause addiction or specific mental health harms. Therefore, for the same reasons Béjar is unqualified to offer expert opinion about the latter, he is unqualified to offer expert opinion about the former.

opine that platforms cause addiction or “excessive use.” It also contradicts the remainder of that opinion’s reasoning, which held he was *not* so qualified. And it appears to have overlooked that Judge Kuhl established two rounds of expert exclusion brief, the first to focus on general causation and the second to focus on all other issues; Defendants had separately moved to exclude the remainder of Mr. Béjar’s opinions in the second round, which Judge Kuhl is set to rule on in late October.

In sum, Mr. Béjar lacks any hint of “special knowledge, skill, experience, training, and education,” Fed. R. Evid. 702, that would qualify him to offer any opinions about whether social media is capable of causing mental health harms. His opinions would not be helpful to the trier of fact—and, in fact, permitting his opinions to go to the jury with the imprimatur of “expertise” would be unduly prejudicial.

b) Mr. Béjar’s General Causation Opinions Lack Any Reliable Methodology.

Even setting Mr. Béjar’s lack of qualifications aside, his “methodology” is a textbook example of the sort of non-rigorous, unscientific opinion that Rule 702 exists to prevent. Mr. Béjar either proffers opinions based on his anecdotal experience or relies on his sporadic “testing” of Instagram’s content recommendations between 2023 and 2024. *See, e.g.*, Ex. 89, (“Béjar MDL Dep.”) 997:12–17. This “experience” did not involve any comprehensive review of academic literature or any of the scientific areas related to general causation. He conducted his “testing” using seven test accounts of both girls and boys, though he inexplicably jettisoned the male accounts. *Id.* at 994:2–15. He “got the phone out of the drawer, erased it, create[d] an account on Apple with the right age, so 13 or 14 ... [a]nd then [he] created Instagram.” *Id.* at 197:5–17. Mr. Béjar even agreed that his testing did not require any “special experience or training or expertise” and that “other people could reproduce this easily.” *Id.* at 1011:2–14; *see also* 1013:12–1015:12. Either method falls well below Rule 702’s standards.

(1) Mr. Béjar Failed to Consider Any Relevant Literature.

Offering an opinion on general causation “requires serious engagement with the relevant literature.” *In re Roundup Prods. Liab. Litig.*, 737 F. Supp. 3d 898, 902 (N.D. Cal. 2024). The literature an expert considers must provide evidence of causation, not simply “a ‘compelling link’ or an ‘association.’” *Id.* at 905.

Mr. Béjar does not purport to rely on any scientific, academic, or peer-reviewed literature (nor would he be qualified to assess it in court even if he had). When pressed, Mr. Béjar pointed to only the Surgeon

General’s Advisory on Social Media and Youth Mental Health, but he is not qualified to offer independent analyses of that document or the literature it relies on (which is addressed by Defendants’ experts). *See* Ex. 88, (“Béjar JCCP Dep.”) 89:9–90:11 (attempting to discuss it). To the extent that Mr. Béjar purports to rely on internal Meta documents in an attempt to bridge the causal gap or support his opinions, that reliance fails for the same reason. When asked about those documents, Mr. Béjar himself testified that they merely implied only associations (and therefore not causation). *See, e.g., id.* at 212:4–213:2 (characterizing internal documents he reviewed as about “how users felt about” a certain feature). For instance, Mr. Béjar has pointed to the “Bad Experiences and Encounters Framework” or “BEEF” survey, a survey conducted by a Meta researcher as evidence that Meta causes mental health harms. *See* Ex. 89, (“Béjar MDL Dep.”) 505:21–506:1; 868:18–22. But that survey simply asked users whether they perceived certain experiences on the platforms—such as whether they had experienced bullying or seen content of certain types. A user reporting that they perceived certain experiences on the platforms does not demonstrate a *causal* link between the platforms and addiction or other mental health harms.

(2) Mr. Béjar’s “Testing” Cannot Measure Causation.

Mr. Béjar’s own impressions, formed through semi-random “experimentation” with Instagram, cannot reliably demonstrate the core of a general causation opinion: causation. To the contrary, scientifically valid experiments capable of assessing causality depend on careful design and specific parameters to assess this complex topic. *See, e.g., Federal Reference Manual on Scientific Evidence* (3d ed. 2011) at 222 (noting that data “from an observational study or nonrandomized controlled experiment” would need to have treatment and control groups, comparisons between these groups, and methodology to address confounding variables). Further, it is unclear how Mr. Béjar’s “testing” could possibly support general causation opinions when all it measured were his subjective reactions to seeing specific types of content on Instagram. *See e.g., id.* at 220 (“[D]ata from a treatment group without a control group generally reveal very little and can be misleading. Comparisons are essential.”). His opinions are “connected to existing data only by [his] *ipse dixit*.” *See Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997). Mr. Béjar did not purport to measure *any* mental health outcomes from his testing—just his observations of what he saw. Nor does Mr. Béjar provide any explanations for how or why the content *he* saw on Instagram would cause *teens* to develop mental health issues or why *teens* would share his subjective reactions. That leap is “simply too great an

analytical gap between the data and the opinion proffered.” *Id.*

(3) Mr. Béjar’s “Method” Fails Every Indicator of Reliability.

Every factor that courts employ to assess methodological reliability points the same way: Mr. Béjar’s methods are unreliable and must be excluded. Indeed, it is challenging even to apply the usual Rule 702 factors to Mr. Béjar’s opinions, lacking any methodology, given that Mr. Béjar’s views are largely pulled from thin air and his methods boil down to tinkering with Instagram.

First, Mr. Béjar’s method is not testable, replicable, or falsifiable. *See Daubert*, 509 U.S. at 593 (describing this as “key”). Mr. Béjar himself indicated that his approach is “not necessarily repeatable.” Ex. 88, (“Béjar JCCP Dep.”) 278:2–6. Nor does it require “clearly defined harm categories ... [because] it is likely that you’re going to find harms or issues ... that are not being clearly outlined prior to undertaking the testing.” *Id.* at 280:1–17. In fact, Mr. Béjar did not create comprehensive documentation, did not take notes, and relied solely on his memory and incomplete video recordings; he created a “protocol” two years after his initial testing based on those materials. Ex. 89, (“Béjar MDL Dep.”) 1003:21–1004:1; 1020:2–13; 1020:23–1021:5 (“I didn’t record the entirety of the testing session”); 1021:24–1022:2 (no comprehensive documentation of the dates of testing). Without a detailed methodology and recording of steps taken in addition to undefined harms, there is no way to replicate the testing Mr. Béjar conducted. In fact, his purported “protocol” omits key aspects of his testing. *See, e.g., id.* at 1005:3–18 (failing to record the creation of boy accounts or significant break in testing due to distress). He himself intended his “testing” to be “an early indication ... [of] the ease at which this kind of content can be found” rather than “independent, thorough, ongoing testing of ... all of these safety features.” *Id.* at 1003:1–18. Indeed, Mr. Béjar haphazardly determined how to search and what content to look at. *See e.g., id.* at 199:8–12 (“[I]f a video looked a little racy, I would watch the video. If a video looked a little violent, I would watch that video.”). He started and stopped his testing at will, untethered from any methodological guideposts, and resumed testing at random times or specifically in advance of his deposition. *See e.g., id.* at 997:12–17, 998:22–25, 999:5–8.

Second, Mr. Béjar’s approach has not been subject to any valid external review, let alone peer review or publication. *See Daubert*, 509 U.S. at 593 (a “pertinent consideration is whether the theory or technique has been subjected to peer review and publication”). Instead, Mr. Béjar’s views developed in his head and via

his unscientific testing—and nothing else. *See* Ex. 89, (“Béjar MDL Dep.”) 995:2–8 (testing was not “part of some kind of research exercise being run through an academic institution”).

Third, there are no meaningful “standards or controls,” *Daubert*, 509 U.S. at 593, employed in Mr. Béjar’s work, *see supra* § IV.B.1(b)(2). (describing process of testing).

Fourth, there is no indication that Mr. Béjar’s methods are accepted by any serious person in the field—let alone “general acceptance” in the field. *See Daubert*, 509 U.S. at 594. Mr. Béjar repeatedly denied for his “protocol” to be based on any external source or scientific literature. *See e.g.*, Ex. 89, (“Béjar MDL Dep.”)1008:18–22 (“Again, this was par[t] of my responsibilities at Yahoo! And generally, I mean, I think the testing of the product is always part for the course for when you’re responsible for one.”). He could not provide any literature, practice manual, or example protocols that would support his execution of “unit testing.” *See e.g.*, Ex. 88, (“Béjar JCCP Dep.”)284:9–12 (“I don’t recall having seen literature or academic studies to the effect of testing scenarios and testing case.”). Mr. Béjar’s own statements that such testing is “common practice of security and safety practitioners” is insufficient to legitimize his purported methods. *Id.* at 282:19–22. Instead, it consisted of his unguided experimentation, conversations with his daughter, and impressions.

Finally, Mr. Béjar’s opinions rely inextricably on third-party content and Meta’s publication of it. For the reasons explained in Defendants’ concurrently filed motion to exclude general causation experts based on Section 230 and the First Amendment, those opinions are foreclosed under the law and this Court’s Orders. As shown by the explanation above, those opinions are based on the *content* he was shown when using fake accounts and the manner in which it was published to him.

In sum, Mr. Béjar fails to engage in anything resembling serious scientific or medical inquiry and fails to base his opinions on reliable materials.

2. Ms. Rubaek [PI/SD, AG]

Lotte Rubaek seeks to offer opinions that Defendants’ services can cause suicidal and non-suicidal self-injury, eating disorders, other mental health disorders, and suicidal ideations in American teens. But, Ms. Rubaek, a Danish counselor who is not licensed and has not practiced in the United States, has not supported these opinions with a reliable methodology, nor is she qualified to give these opinions.

Ms. Rubaek specializes in therapeutic treatment of children and young people in Denmark experiencing non-suicidal self-injury. Ex. 90 Transcript of Lotte Rubaek April 1, 2025 MDL Deposition

17:5-6, 18:6-13. She is not a doctor, *id.* at 145:18-20, and has never treated or conducted research involving any Americans—much less American teens. *Id.* at 146:7-25. Ms. Rubaek previously served as a member of Meta’s Global Suicide and Self-Injury Expert Advisory Board; but by her own admission, her work on the board was occasional and limited. *Id.* at 56:8-12; *id.* at 127:15-18; *see also* Ex. 2 at 71 (Ruling Re: Defendants’ Motion to Exclude the Expert Testimony of Lotte Rubaek, *Social Media Cases*, JCCP 5255 at 71 (Los Angeles Super. Ct. Sept. 22, 2025)) (“The fact Meta named Rubaek to its expert panel on suicide and self-injury does not qualify her to give the testimony proposed by Plaintiffs.”). She has never consulted for any other Defendant. Ex. 91 Transcript of Lotte Rubaek July 8, 2025 JCCP Deposition 52:10-18; Ex. 90 (Rubaek MDL Dep.) 147:13-16.⁴⁰ For several reasons, Ms. Rubaek’s opinions must be excluded. **First**, Ms. Rubaek is not qualified to opine about social media’s effects on adolescent mental health. By her own admission—and despite seeking to offer opinions in this case about the scientific causes of several medical conditions—she is not a medical doctor, nor does she have a Ph.D. Ex. 90 (Rubaek MDL Dep.) 16:7-9; Ex. 91 (Rubaek JCCP Dep.) 12:15-17. She also admits that she has no credentials related to social media design and little idea of Defendants’ features or how they work, rendering her opinions about them improper lay testimony. **Second**, Ms. Rubaek’s opinions are barred by Section 230 and the First Amendment because she fails to (and has no reliable methodology to) disentangle her opinions about the features of social media platforms from the protected content and features that appear on those platforms. **Third**, her made-for-litigation opinions are marred by numerous methodological flaws. She offers sweeping opinions about all platforms without offering a reliable basis for her platform-specific opinions, demonstrating that she did not perform the necessary “good science” in forming those opinions.⁴¹ *Daubert v. Merrell Dow Pharms., Inc.*, 43 F.3d 1311 (9th Cir. 1995)

⁴⁰ Based on Ms. Rubaek’s expert disclosure and deposition, the non-Meta Defendants’ understanding is that Ms. Rubaek is not attempting to offer any opinions as to the non-Meta defendants—nor could she, as a non-retained expert who has never worked for any of the non-Meta defendants and who lacks any specialized knowledge as to the non-Meta Defendants. To the extent Ms. Rubaek attempts to do so, that would be plainly improper in light of her lack of experience with the non-Meta Defendants and for all of the other reasons stated in this brief.

⁴¹ Ms. Rubaek’s MDL deposition included no substantive testimony about YouTube. Ms. Rubaek did not assert anything about YouTube or its features, nor cite a study involving YouTube. In fact, Ms. Rubaek (continued...)

(quotation omitted).

In the JCCP proceedings, the court excluded Ms. Rubaek's opinions, finding her unqualified and lacking a reliable methodology. Ex. 2 (JCCP Ruling Re: Defendants' Motion to Exclude Rubaek) The same result is warranted here.

a) Ms. Rubaek Is Not Qualified to Opine on If Defendants' Features Cause Self-Harm.

An expert witness's opinion testimony must be based on "the expert's scientific, technical, or other specialized knowledge [that] will help the trier of fact to understand the evidence or to determine a fact in issue." Fed. R. Evid. 702(a). Expert opinion can only help the trier of fact if it goes "beyond the common knowledge of the average layman." *See, e.g., United States v. Finley*, 301 F.3d 1000, 1007 (9th Cir. 2002).

Though Ms. Rubaek may have knowledge about self-injury, she is not an expert on how *features* of social media platforms affect mental health, and she is not qualified to opine on every topic that might be related to self-harm. *See, e.g., People v. Kinder Morgan Energy Partners, L.P.*, 159 F. Supp. 3d 1182, 1199 (S.D. Cal. 2016) (excluding as unqualified a former city water employee to offer opinions "evaluat[ing] hydrological and hydrogeological issues" because she was "not a hydrogeologist" and "lack[ed] pertinent qualifications"). As Ms. Rubaek admits, she has not previously conducted research "on the relationship between social media and mental health," despite that being the very core of her opinions in this case. Ex. 90 (Rubaek MDL Dep.) 226:10-22. Nor has she done the bare minimum for scientific competency: perform a literature review. Ex. 91 JCCP Dep. 23:22-25; *id.* at 116:7-10. Although Ms. Rubaek seeks to opine about how social media use affects American teens, she admits she has never evaluated that group. Ex. 90 (Rubaek MDL Dep.) 146:7-18; *id.* at 146:22-25. And despite her acknowledgement that meaningful cultural differences exist between Denmark and the United States, *id.* at 207:24–208:22 (identifying differences like LGBTQ+ acceptance, the political climate, gun violence, health insurance, and income inequality), she fails to explain how she accounted for those differences in

mentioned YouTube only twice during her expert deposition, to state that (a) children may play less because they are "entertained" by YouTube or other social media, Ex. 90 (Rubaek MDL Dep.) 209:15-22; and (b) YouTube is among various platforms that allegedly trigger mental health challenges, without describing those challenges or distinguishing between different platforms. *Id.* at 220:9-14. Accordingly, any other testimony from Ms. Rubaek purporting to apply to YouTube is baseless and should be excluded.

1 drawing conclusions about American teens from data about Danish teens, further demonstrating that she
2 lacks expertise on how social media may affect self-harm among American teens.

3 Ms. Rubaek also has no understanding of how the features on Defendants’ platforms work, and
4 therefore is unqualified to opine on how they purportedly cause self-harm. Her opinions derive from two
5 sources: secondhand knowledge—that is, what her patients have told her, *see id.* at 118:3-5 (discussing
6 Instagram features Ms. Rubaek finds problematic “[a]s reported ... by [her] patients”); *id.* at 223:5–224:7
7 (noting that her patients have not shown her the content she believes is harming them)—and what she
8 knows about those features like any lay person who has heard of them, *see id.* at 176:13-17 (stating that
9 “what I know is what we all know about the platforms” when asked about Facebook platform design).
10 But for Ms. Rubaek’s opinions to qualify as those of an expert, she must add her own *expertise* about how
11 those platforms work. Her lack of expertise renders Ms. Rubaek’s “views, and the assumptions behind
12 them, [mere] lay speculation.” *Kinder Morgan*, 159 F. Supp. 3d at 1199.

13 Consider Ms. Rubaek’s opinions on content moderation and algorithms. She concludes that teens
14 are harmed by “the lack of moderation of ... harmful content.” Ex. 90 (Rubaek MDL Dep.) 68:11-15.
15 But that conclusion is not based on any expertise—indeed, as she openly admits, she is “not a tech expert,”
16 and, despite opining that Defendants do not do enough to moderate harmful content, she disclaims any
17 knowledge of Defendants’ current moderation efforts. Ex. 91 (Rubaek JCCP Dep.) 84:1-7 (when asked
18 about what age verification measures are purportedly missing from Facebook, responding “Since I’m not
19 a tech expert, I would only point to the results of the measures that should be brought into play”); *id.* at
20 126:18-24, 128:4-5 (admitting that “access to data on the platforms” is needed to investigate what Meta
21 platforms do to moderate harmful content, and that she does not have “insight into the data that – within
22 Meta”). She opines that algorithms cause self-injury because they “make[] the [user’s] feed full of self-
23 injury and depressive and suicidal content.” Ex. 90 (Rubaek MDL Dep.) 27:4-5; *see also id.* at 124:23–
24 125:3. Yet Ms. Rubaek concedes that she has no training or experience in machine learning or algorithms.
25 *See id.* at 146:1-6, 147:17-23, 148:7-16, 150:5-11. In short, Ms. Rubaek baldly opines that social media
26 platforms have inadequate content moderation and their algorithms cause harm to teens with no basis for
27 those views other than secondhand information. Because of her lack of expertise, her opinions on how
28 Defendants’ features cause harm should be excluded.

b) **Ms. Rubaek’s Opinions Impermissibly Rely on Content and Publishing Activity.**

Ms. Rubaek’s opinions should be stricken because they are impermissibly based on content despite this Court’s ruling that Section 230 prohibits holding Defendants liable for their “roles as publishers of third-party content.” PI Order at 824, 830–34. Thus, Ms. Rubaek cannot testify about whether social media can cause harm if those opinions depend on exposure to third-party content or publishing features. *See, e.g., Greenwood Utils. Comm’n v. Miss. Power Co.*, 751 F.2d 1484, 1503–04 (5th Cir. 1985) (excluding expert opinions relying on conduct protected by the *Noerr-Pennington* doctrine); *Malden Transp., Inc. v. Uber Techs. Inc.*, 404 F. Supp. 3d 404, 424 (D. Mass. 2019), *aff’d*, 8 F.4th 1 (1st Cir. 2021) (similar).

Ms. Rubaek’s opinions about content moderation are squarely foreclosed. She testified that “children and ... adolescents ... [are] suffering from the dynamics and the impact of the design of social media, especially the lack of moderation of this harmful content.” Ex. 90 (Rubaek MDL Dep.) 68:11-15. But Section 230 precludes liability based on a purported failure to moderate third-party content, or even inadequate but good-faith moderation. *See Barnes v. Yahoo!, Inc.*, 570 F.3d 1096, 1105 (9th Cir. 2009), *as amended* (Sept. 28, 2009) (Section 230 “shield[s] from liability” good-faith moderation efforts).

To reliably conclude that *unprotected features* can cause the harm Plaintiffs claim—rather than the publishing of third-party *content* that is protected by Section 230—Ms. Rubaek must somehow disentangle the two in her analysis. She does not. Indeed, she does not believe that the two *can* be separated. In her view, “any negative mental health outcomes for teenagers arising from the platform are the result of both the content and the features.” Ex. 91 (Rubaek JCCP Dep.) 163:21–164:7 (agreeing with this statement). She also explicitly points to evidence of harm caused by exposure to third-party content as the basis for her opinion. For instance, she testified that “self-harm content ... is ... very shocking content. So, *when you see it*, you will be affected by it.” Ex. 90 (Rubaek MDL Dep.) 45:17-21. The same goes for body-image issues: “when a girl ... *sees a lot of images* on social media with ... unrealistic body ideals, then it affects children more than it would affect adults.” *Id.* at 31:23–32:3 (emphasis added). Ms. Rubaek’s reliance on content is best illustrated by her observation that “[t]he *only reason* why [teenagers] are [on social media] ... is because of the *content*.” Ex. 91 (Rubaek JCCP Dep.) 162:1-4.

Because Ms. Rubaek believes that the *only* reason teens use social media is the content—and because Ms. Rubaek does *not* believe that the effects of content can be disentangled from the effects of social media features—it follows that her opinions about any resultant harms inextricably rely on third-party content, running afoul of Section 230 and the First Amendment. The same goes for Ms. Rubaek’s opinions concerning the impact of publishing features this Court has already deemed protected by Section 230. *See, e.g.*, Ex. 91 (Rubaek JCCP Dep.) 129:19–130:5 (opining that self-harm content can proliferate on a user’s feed “because the algorithms are able to detect if it’s a vulnerable user”); *id.* at 132:19–25; Ex. 90 (Rubaek MDL Dep.) 25:2–8.

c) Ms. Rubaek’s Conclusions that Social Media Use Causes Mental Health Harms Are Based on Unreliable Methodology that also Lacks Sufficient Underlying Evidence.

Expert testimony is only admissible if the proponent “demonstrates to the court that it is more likely than not” that the expert’s testimony is “the product of reliable principles and methods” and “based on sufficient facts or data.” Fed. R. Evid. 702(b)–(c). Plaintiffs cannot demonstrate that Ms. Rubaek employs reliable principles and methods grounded in sufficient facts; on the contrary, she engages in impermissible *ipse dixit* and ignores the possibility of reverse causation and confounding factors. Her lackluster methodology falls far short of what is expected from expert opinion.

(1) Ms. Rubaek’s opinions are pure *ipse dixit*.

An expert’s opinion may be excluded if it is “connected to existing data only by the *ipse dixit* of the expert.” *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 157 (1999) (quoting *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 137 (1997)). Further, an expert opinion should “contain[] a reasoned explanation illuminating why the facts have convinced the expert.” *Archie v. Pop Warner Little Scholars, Inc.*, No. 20-55081, 2021 WL 4130082, at *2 (9th Cir. Sept. 10, 2021).

Ms. Rubaek relies on cross-sectional studies that cannot support causation. As Ms. Rubaek admits, any one cross-sectional study can only show an association, which is distinct from causation. Ex. 91 (Rubaek JCCP Dep.) 134:14–16, 135:6–8, 143:14–17; *see also, e.g.*, Ex. 39 Federal Judicial Center, *Reference Manual on Scientific Evidence* 218 (3d ed. 2011) (“[W]ork is needed to bridge the gap between association and causation.”). Still, Ms. Rubaek could not explain how she bridged that gap. *See* Ex. 91

(Rubaek JCCP Dep.) 146:25–147:6 (admitting she “couldn’t point to a specific number” of cross-sectional studies that would support causation). Accordingly, she has made a plain logical leap that is prohibited under Rule 702.

Ms. Rubaek draws conclusions unsupported by literature and logic. In evaluating the reliability of an expert’s opinion, a court should “make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.” *Kumho*, 525 U.S. at 152. By overreading studies and making unsupported inferential leaps, Ms. Rubaek fails to uphold this level of rigor. *See Joiner*, 522 U.S. at 146 (large “analytical gap[s]” between an expert’s opinion and the actual contents of the literature cited for that proposition support exclusion). Ms. Rubaek reaches conclusions for which she provides no support—quintessential *ipse dixit*. For instance, she opines that the advent of social media in 2004 has been a systemic cause of the increase in self-harm worldwide, Ex. 91 (Rubaek JCCP Dep.) 81:16–23, but many of Defendants’ platforms did not *exist* in 2004, much less employ *any features* that she opines cause harm. Ms. Rubaek also concludes, without support, that for girls, “it’s mostly social media that their screen time consists of.” *Id.* at 41:18–19. But she was “not quite sure” what percent of teens’ time is spent on social media, much less on any specific platforms. *Id.* at 43:8–9.

Moreover, Ms. Rubaek frequently relies on literature unrelated to social media, including numerous studies that she admits “are not designed to show anything about social media,” *id.* at 119:2–8; 120:16–121:4. Similarly, Ms. Rubaek repeatedly cites to studies about platforms other than Defendants’, which she admits are not reliable sources about ***Defendants’*** platforms. *See, e.g.*, Ex. 90 (Rubaek MDL Dep.) 182:2–12 (Japanese internet forum); *id.* at 183:2–7 (South Korean online platforms); *id.* at 184:22–25 (Periscope). Ms. Rubaek’s application of these unrelated studies to this case necessarily involves reliance “upon assumptions which are not supported by the record,” and which are “speculative, remote, or conjectural,” so her opinions based on these studies “ha[ve] no evidentiary value.” *Nelson v. Matrixx Initiatives*, No. C 09-02904 WHA, 2012 WL 3627399, at *10 (N.D. Cal. 2012) (citation omitted).

Ms. Rubaek draws unsupported conclusions about American teens from literature about Danish teens. Another key flaw running through Ms. Rubaek’s opinions is her uncritical assumption that studies about Danish teens apply equally to American teens. Yet, as discussed, Ms. Rubaek admits there are

1 numerous cultural factors that affect American teens differently than Danish teens, and that these different
 2 factors can differentially affect a teenager's mental health in the two countries. *Supra* § (b)(1); Ex. 90
 3 (Rubaek MDL Dep.) 207:24–208:22; Ex. 91 (Rubaek JCCP Dep.) 122:10–123:19. Despite this, Ms.
 4 Rubaek never accounts for these differences, nor does she explain how her opinions can apply to American
 5 teens. With “no explanation supporting th[is] logical leap,” she simply assumes that they are the same.
 6 *Archie*, 2021 WL 4130082, at *2. *See, e.g.*, Ex. 90 (Rubaek MDL Dep.) at 118:15–19 (Danish study about
 7 Instagram feeds); JCCP Dep. 45:10–11 (Danish study about time spent); Ex. 91 (Rubaek JCCP Dep.)
 8 130:6–13 (Danish studies examining teens' feeds).

9
 10 **(2) Ms. Rubaek cannot rule out reverse causation or confounding factors.**

11 Ms. Rubaek does not rule out reverse causation or confounding factors, supporting the conclusion
 12 that her analysis is speculative and unreliable. *See In re Roundup Prods. Liab. Litig.*, 737 F. Supp. 3d
 13 893, 896–97 (N.D. Cal. 2024) (excluding expert who failed to explain why he found study persuasive
 14 despite risk its results were the product of confounding). To validly draw conclusions based on
 15 correlational studies, which Ms. Rubaek relies on here, it is critical that an expert explain how they ruled
 16 confounding variables (*i.e.*, other factors causing both mental health harms and increased social media
 17 use). *See Ex. 39 Reference Manual* at 219 (confounders are a “problem to reckon with, even for the best
 18 observational research”).

19 Ms. Rubaek has not done that work. Here, Ms. Rubaek admits it is not possible to rule out reverse
 20 causation—that mental health issues cause increased social media use—based on the studies on which she
 21 relies. Ex. 91 (Rubaek JCCP Dep.) 144:13–19; *id.* at 147:24–148:1. Instead of accounting for this, she
 22 simply ignores it. Nor did she explain how she ruled out potential confounding variables. To the contrary,
 23 Ms. Rubaek concedes that factors other than social media cause mental health struggles. For example,
 24 her forthcoming book apparently points to a cornucopia of possible alternative causes, like “how the
 25 educational system has changed,” “self-objectification and ... smartphones and the way parents take a lot
 26 of pictures of ... children,” “self-staging,” and “physical health.” Ex. 90 (Rubaek MDL Dep.) 204:25–
 27 206:15, 206:23–207:2. Because Ms. Rubaek never rules out that these potential confounders could be
 28 causing both mental health harm and increased social media use, and extrapolates from other social media

platforms, exclusion is warranted. *See In re Roundup Prods. Liab. Litig.*, 737 F. Supp. 3d at 897.

C. The Experts Retained by the Attorneys General to Offer Opinions about Meta Should Each Be Excluded Because None Employs the Reliable Methodology Required by Rule 702.

1. Dr. Hale [AG-only]

Dr. Lauren Hale is a sleep researcher and professor at Stonybrook University. Ex. 92, Rebuttal Trial Report of Dr. Lauren Hale, Ph.D July 30, 2025 (“Hale Rep.”) ¶¶ 5–6. She is not a medical professional, has never seen or treated a single patient, and has never diagnosed anyone with a sleep disorder caused by social media (nor would she be qualified to do so). Ex. 93, Transcript of Dr. Lauren Hale September 17, 2025 Deposition (“Hale MDL Dep.”) 91:3–92:10. Dr. Hale does not have any affirmative opinions; the sole focus of her rebuttal report is criticizing Meta’s sleep expert, Dr. Sarah Honaker. In the course of doing so, Dr. Hale opines that “Dr. Honaker understates the clinical significance of sleep loss for optimal functioning” (Opinion 1); “Dr. Honaker inappropriately dismisses studies of ‘screen use’” (Opinion 2); and “Dr. Honaker’s opinion that there is no causal relationship between social media use and sleep in adolescents is inconsistent with academic literature and expert consensus” (Opinion 3). Because Opinions 2 and 3 are not reliable or helpful to the trier of fact, they should be excluded under Rule 702.

a) Dr. Hale’s “Social Media” Opinions (Opinions 2 and 3) Should Be Excluded as Irrelevant and Unhelpful Because They Are Not Specific to Facebook or Instagram.

The factfinder in this case will be asked to determine whether Facebook or Instagram caused harm to adolescents. Dr. Hale conceded that she has *no opinion* on that question. Her opinions regarding the purported causal impact of “social media” writ large (Opinions 2 and 3) are irrelevant and unhelpful to the trier of fact, and should be excluded on that basis.

Under Rule 702, expert testimony must “help the trier of fact to understand the evidence or to determine a fact in issue” to be admissible. Fed. R. Evid. 702(a). Expert testimony “which does not relate to any issue in the case is not relevant and, ergo, non-helpful.” *United States v. 87.98 Acres of Land More or Less in the Cnty. of Merced*, 530 F.3d 899, 904 (9th Cir. 2008) (quoting *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 591 (1993)).

Meta is the only defendant in this case; Facebook and Instagram are the only social media platforms at issue. Although Dr. Hale offers vague causal opinions about “social media” writ large, she made absolutely no effort to tailor those opinions to Facebook or Instagram, stating that it was “outside the scope” of her report to do so. *See, e.g.*, Ex. 93 (Hale MDL Dep.) 106:12–22. This is not a mere issue of semantics—Dr. Hale repeatedly testified that the “state of the science” *does not support* an opinion that Facebook or Instagram impair adolescent sleep health, and that she was “not prepared to say one way or the other” whether Facebook or Instagram caused harm. *Id.* at 107:14–24, 252:22–253:9. That concession is fatal to the helpfulness and admissibility of Dr. Hale’s non-specific causal opinion. *See, e.g., Sanderson v. Int’l Flavors & Fragrances, Inc.*, 950 F. Supp. 981, 988 (C.D. Cal. 1996) (a plaintiff’s expert testimony must establish that “each defendant caused [them] to suffer injury”); *Daubert v. Merrell Dow Pharm., Inc.*, 43 F.3d 1311, 1315 (9th Cir. 1995) (courts must ensure that “the proposed expert testimony is ‘relevant to the task at hand,’ i.e., that it logically advances a material aspect of the proposing party’s case”) (quoting *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 597 (1993)). Even if there are some circumstances where a causal opinion for an entire category can be applied or extrapolated to its component parts, Dr. Hale admitted that is not the case here: “the science is not at th[e] level” necessary to support causal findings with respect to Facebook or Instagram. *Id.* at 108:19–109:6.

Because Dr. Hale does not and cannot offer opinions specific to Facebook and Instagram, her opinions regarding the impact of “social media” writ large fail to prove general causation and should be excluded as irrelevant and unhelpful the trier of fact. *See* Ex. 92 (Hale Rep.) ¶¶ 25, 31–36, 39–41, 45, 50, 57, 61–63, 65, 70–72, 78, 81–82.

b) Dr. Hale’s “Social Media” Opinions (Opinions 2 and 3) Should Be Excluded Because They Impermissibly Rely on the Purported Impact of Third-Party Content and Protected Publishing Activity.

Dr. Hale’s vague “social media” opinions should also be excluded because they impermissibly rely on the purported causal impact of third-party content and protected publishing activity.

This Court has already ruled, consistent with Section 230 and the First Amendment, that Meta cannot be held liable for the impact of third-party content and protected publishing activities, rejecting an “all or nothing approach” and concluding that the case must focus on “the specific conduct through which

1 the defendants allegedly violated their duties.” PI Order at 829. Dr. Hale did not make any attempt to
 2 disentangle the impact of conduct, which *may* be a basis for liability, from content or publishing activities,
 3 which this Court has rightly held cannot. Indeed, Dr. Hale conceded that she is not capable of doing so,
 4 testifying that “content and features on social media platforms like Instagram and Facebook are
 5 *inextricably intertwined and it is too difficult to differentiate.*” Ex. 93 (Hale MDL Dep.) at 241:19-242:5
 6 (emphasis added).

7 Dr. Hale’s report specifically identifies and criticizes certain purported “features” that this Court
 8 has held, as a matter of law, are protected content and/or publishing activities. *Compare* Ex. 92 (Hale
 9 Rep.) ¶ 34 (identifying “notifications, infinite scroll, autoplay, ephemeral content, and tailored
 10 algorithms” as “[d]esign features” of social media that “interfere with sleep”) *with* PI Order at 830–31
 11 (holding that the following “alleged design defects directly target defendants’ roles as publishers of third-
 12 party content and are barred by Section 230”: (i) “[n]ot providing a beginning and end to a user’s ‘Feed’”;
 13 (ii) “[l]imiting content to short-form and ephemeral content”; (iii) [t]iming and clustering of notifications
 14 of third-party content”; and (iv) “[u]se of algorithms to promote addictive engagement”) *and In re Soc.*
 15 *Media Adolescent Addiction/Pers. Inj. Prods. Liab. Litig.*, 753 F. Supp. 3d 849, 930 (N.D. Cal. 2024)
 16 (granting Meta’s motion to dismiss “to the extent the States’ theories of unfair and unconscionable acts
 17 and practices target ... infinite scroll and autoplay; ephemeral content[.]”). This creates an untenable
 18 situation for the fact-finder. Relying in any way on Dr. Hale’s non-targeted causal opinions risks basing
 19 liability on content and/or publishing activities that this Court has already ruled *cannot* be the basis of
 20 liability. Dr. Hale provides no means for the fact-finder to pick out portions of her opinions that are safe
 21 to rely on from those that are not.

22 Dr. Hale also expressly relies on the purported negative effects of third-party content. She opines
 23 that social media use at night can disrupt sleep because “content in social media can be psychologically
 24 stimulating.” Ex. 92 (Hale Rep.) ¶ 35. In discussing sleep studies, Dr. Hale admits that the response
 25 participants have depends “in some part on the content that is being shown on the social media screen.”
 26 Ex. 93 (Hale MDL Dep.) 245:3–10. Dr. Hale discusses algorithms and social media feeds as “interactive
 27 contents.” Ex. 93 (Hale MDL Dep.) 260:16–17. And even the studies she cites rely on content in their
 28 analysis of the alleged effect of social media on sleep health. Ex. 93 (Hale MDL Dep.) 335:8–9 (“So it

shows that both light and content work together to affect sleep health.”).

To reliably conclude that Defendants’ *features* can cause the harm Plaintiffs claim—rather than the third-party *content* or publishing activity that is protected by Section 230—Dr. Hale must somehow disentangle the two in her analysis. But Dr. Hale did not do so and admits that she cannot. Dr. Hale’s inability to separate content from the features is a hallmark violation of Section 230, and her opinions should be excluded.

c) Dr. Hale’s “Social Media” Opinions (Opinions 2 and 3) Should Be Excluded as Unreliable.

To be admissible under Rule 702, expert opinions must be “based on sufficient facts or data” and “the product of reliable principles and methods.” Fed. R. Evid. 702(b)–(d). The Court must also “make certain that an expert ... employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.” *In re Acetaminophen Prods. Liab. Litig.*, 707 F. Supp. 3d 309, 335 (S.D.N.Y. 2023). Dr. Hale did not apply *any* methodology in opining that “social media” causes harm to sleep health, let alone a reliable one. Accordingly, her opinions should be excluded.

The vast majority of the studies Dr. Hale relies upon show, at most, an *association* between “screen time” and marginally worse sleep outcomes. Dr. Hale conceded that “[t]here are a lot of different ways that adolescents can use screens” that have *nothing to do* with social media (let alone Facebook or Instagram), including streaming, gaming, internet browsing, or texting with friends. Ex. 93 (Hale MDL Dep.) 344:13–345:16. This creates a significant problem for Dr. Hale: she was asked to offer opinions about the causal impact of *social media*, but the literature does not drill down to that level of specificity, instead focusing broadly on all forms of screen time. Dr. Hale largely ignores this fundamental mismatch. Although she claims to have used a “consensus method” in forming her opinions about social media, *see id.* at 291:11-17, the only two “consensus” statements she relied on were *not limited to social media*. The 2024 “consensus” panel—which contained at least two paid Plaintiff experts—agreed that “**screen use** impairs sleep health for adolescents” without making any findings as to social media. Ex. 94 (Hartstein et al., *The impact of screen use on sleep health across the lifespan: A National Sleep Foundation consensus statement*, Sleep Health: J. Nat’l Sleep Found., May 2024, at 375) (emphasis added); Ex. 92 (Hale Rep.)

¶ 39 (discussing this article).⁴² And the 2025 “consensus” panel—which likewise contained multiple paid litigation experts—agreed that “heavy daily use of *smartphones* and social media can cause some sleep problems” without disentangling the two (and also noting that “the extent to which it causes sleep deprivation specifically remains unclear”). Ex. 95 (Capraro et al., A consensus statement on potential negative impacts of smartphone and social media use on adolescent mental health, PsyArXiv preprint, May 16, 2025, at 14) (emphasis added); Ex. 92 (Hale Rep.) ¶ 57 (discussing this article).

Dr. Hale’s only attempt to get around this problem is a single statement, made in passing, that “it is reasonable to assume that even studies that focus on ‘overall screen time’ are driven in large part by use of social media.” Ex. 92 (Hale Rep.) ¶ 33. Dr. Hale conceded that she did not apply *any* methodology in making that statement, let alone a reliable one: “*I didn’t use a methodology*. It was just a -- a statement of reasoning.” Ex. 93 (Hale MDL Dep.) 352:2-8 (emphasis added); *see also id.* 353:10-20 (“I did not use a specific methodology”). That alone is grounds for exclusion. *See, e.g., Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997) (a court may not “admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert”); Fed. R. Evid. 702 advisory committee’s note to 2000 amendments (“The trial court’s gatekeeping function requires more than simply ‘taking the expert’s word for it.’” (citing *Daubert*, 43 F.3d at 1319. The issues run even deeper from there. Dr. Hale’s statement is based entirely on data from two cherry-picked papers on adolescent smartphone use, including one non-peer-reviewed survey purporting to show that up to 61% of adolescent screen time is “social media.” Ex. 93 (Hale MDL Dep.) 348:23–349:7. But that *same data* shows that Instagram and Facebook only make up 5.9% and 0.1% of total screen time, respectively, and Dr. Hale conceded that she would not be comfortable opining that general “screen time” studies are driven by Instagram and Facebook specifically using that data. *Id.* 362:13–363:5, 363:22–364:12. Dr. Hale’s *ipse dixit* is deeply unreliable given her admitted failure to apply any methodology. That is doubly true given that the same data Dr. Hale relied on contradicts a causal finding as to the only two defendants in this case.

Dr. Hale’s opinions regarding the purported causal impact of social media rely on so-called

⁴² Notably, that same panel agreed that “the *content* of presleep screen use impairs sleep health for adolescents,” reinforcing Dr. Hale’s fatal inability to disentangle the impact of third-party content which cannot form the basis of liability under Section 230. Ex. 94 at 375 (emphasis added).

“consensus” statements that were not limited to social media, let alone Facebook or Instagram. She tried to overcome that limitation by stating baldly that “screen time” studies are “driven in large part by use of social media,” but conceded that she did not apply any methodology at all, let alone one that passes muster under Rule 702. She did not, for instance, even *attempt* to apply the Bradford Hill criteria that courts have found useful in assessing whether an expert has reliably bridged the gap between association and causation, as Dr. Hale tried to do here. Ex. 93 (Hale MDL Dep.) 114:22–115:5; *see also, e.g., In re Viagra (Sildenafil Citrate) & Cialis (Tadalafil) Prods. Liab. Litig.*, 424 F. Supp. 3d 781, 794 (N.D. Cal. 2020) (explaining that causation is often assessed through Bradford Hill criteria). Put simply, Dr. Hale did not do enough to demonstrate that her vague opinions regarding social media and sleep health are based on sufficient facts or reliable methods. Accordingly, her opinions should be excluded under Rule 702.

2. Dr. Zicherman [AG-only]

Dr. Bradley Zicherman is a clinical psychiatrist and director of a Stanford University clinic that serves patients with dual diagnoses of addiction and other mental health harms. He was disclosed only by certain AGs in cases brought against Meta and therefore offers no opinions about any non-Meta defendants. He relies on his clinical experience, supplemented with literature that, by his own admission, he sought out only to confirm his clinical views, to opine that social media addiction is an established, verifiable disorder that is rising in prevalence (“Opinion 1”), Ex. 96 Expert Trial Report of Bradley Zicherman, MD (“Zicherman Rep.”) ¶¶ 1, 22-34; that Instagram and other platform use drives social media addiction and other psychiatric harms (“Opinion 2”), *id.* at ¶¶ 2, 38-54, particularly for teens (“Opinion 3”), *id.* at ¶¶ 3, 35-37; and that teen safety tools are ineffective in addressing such harms (“Opinion 4”), *id.* at ¶¶ 4, 55-61. *Accord.* Ex. 97 Expert Rebuttal Trial Report of Bradley Zicherman, MD (“Zicherman Rebuttal Rep.”) ¶¶ 1-5, 12. All four opinions he seeks to offer in both his Trial and Rebuttal Reports suffer from several methodological flaws, warranting exclusion.

First, Dr. Zicherman’s self-serving “literature review” was designed to identify only those studies that confirmed his preexisting beliefs about social media; it provides neither a valid methodology for evaluating scientific hypotheses nor a reliable basis for his opinions—particularly not as to Instagram. **Second**, Dr. Zicherman’s opinions must be excluded because he has no reliable methodology for disentangling the impact of third-party content and publishing features from any impact of the limited set

of features this Court has held may form the basis of liability. **Third**, Dr. Zicherman’s clinical experience—comprised entirely of anecdotal evidence and undisclosed case notes about a selective population of adolescents experiencing “a more severe presentation” of psychiatric harm, Ex. 98 Transcript of Dr. Bradley Zicherman August 27, 2025 Deposition 266:8-9—is a “black box” to Meta, and his *ipse dixit* extrapolation from that population to the general experience of American adolescent social media users lacks reliable supporting methodology. **Fourth**, Dr. Zicherman is not qualified to opine on dopamine activity—or its drivers and effects—in the brain. *See, e.g.*, Ex. 96 (Zicherman Rep.) ¶¶ 2, 4. The Court should thus exclude all his opinions.

a) Dr. Zicherman’s Skewed Literature Review is Inherently Unreliable (Opinions 1-4).

Dr. Zicherman’s purported literature review does not provide a reliable basis for any of his opinions, *see* Ex. 96 (Zicherman Rep.) ¶¶ 1-4, *see also* Ex. 97 (Zicherman Rebuttal Rep.) ¶ 5, as he purposefully excluded literature that did not conform to the views he developed from his unrepresentative clinical experience. *See* Ex. 98 (Zicherman Dep.) 187:21–188:09. Instead of conducting any meta-analysis or an evenhanded literature review, Dr. Zicherman merely “found studies that support what [he] see[s] every day in practice.” *Id.* at 207:12-21; *id.* at 208:3-6 (“I reference studies that are relevant to supporting my opinion, which is primarily driven and developed based off of actually working with kids that I see with significant social media addictions.”). This expressly subjective selection “suggests an unreliable results-oriented approach” taken by Dr. Zicherman “rather than an objective analysis of the literature.” *In re Roundup Prods. Liab. Litig.*, 737 F. Supp. 3d 893, 897 (N.D. Cal. 2024).

Whether experts “bas[e] testimony upon professional studies or personal experience,” they must “employ in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.” *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 152 (1999) (cleaned up). Dr. Zicherman’s targeted search for literature to bolster his preexisting beliefs about the existence and drivers of social media addiction fails to demonstrate the “intellectual rigor” required. *See In re Roundup Prods. Liab. Litig.*, 737 F. Supp. 3d at 897 (excluding expert who “uncritically deemed results that supported his conclusion to be persuasive and discounted results that did not”); *see also In re Acetaminophen-ASD-ADHD Prods. Liab. Litig.*, 707 F. Supp. 3d 309, 336 (S.D.N.Y. 2023) (“An expert must not cherry-pick

1 from the scientific landscape Instead, sound scientific methodology in assessing general causation
 2 requires an expert to evaluate all of the scientific evidence when making causation determinations.”
 3 (cleaned up)).

4 When asked why he did not consider studies that don’t align with his beliefs, Dr. Zicherman
 5 explained that “they did not support what [he’s] seeing in [his] office.” Ex. 98 (Zicherman Dep.) 187:22–
 6 188:9. Rather than employing a reliable methodology to consider and reject studies with contrary findings,
 7 he offers the *ipse dixit* conclusion that any such studies would be incorrect: “[Q.] [Y]ou did not look for
 8 studies that might be at odds with what you see every day in your clinical practice? ... [A.] They would
 9 be at odds with what is actually happening in the real world.” *Id.* at 207:16-21. A literature review
 10 designed to find support only for a selective sample of clinical practice lacks the required scientific rigor
 11 or a reliable methodology.

12 Critically, Dr. Zicherman has been disclosed as an expert only by the Attorneys General, and only
 13 about Instagram, but his literature review provides no basis for him to opine that Instagram specifically
 14 causes harm—as the Attorneys General must prove. In order for expert testimony to be relevant and
 15 admissible, it must establish that “each defendant caused [the plaintiff] to suffer injury.” *Sanderson v.*
 16 *Int’l Flavors & Fragrances, Inc.*, 950 F. Supp. 981, 987–88 (C.D. Cal. 1996); *see also Gen. Elec. v. Joiner*,
 17 522 U.S. 136, 146–47 (1997) (affirming exclusion where expert relied on studies that did not isolate
 18 exposure of specific agent in question). But Dr. Zicherman admitted that he “do[esn’t] believe there are
 19 many reports that specifically might look at the Instagram app specifically,” Ex. 98 (Zicherman Dep.)
 20 278:6-8, and so certainly, he cannot offer opinions that claim to have isolated Instagram from other social
 21 media based on his review of the literature. As explained further below, Dr. Zicherman’s clinical practice
 22 also does not provide him any basis to offer the relevant, Instagram-specific opinion.

23 **b) Dr. Zicherman’s Opinions Impermissibly Rely on Third-Party Content**
 24 **(Opinions 1-4).**

25 This Court has previously held that Section 230 prohibits holding Defendants liable for their “roles
 26 as publishers of third-party content.” PI Order at 824, 830–34. Other courts rightly exclude expert
 27 opinions that do not separate conduct protected by federal law from conduct that can be the basis of
 28 liability. *See, e.g., Greenwood Utils. Comm’n v. Miss. Power Co.*, 751 F.2d 1484, 1503–04 (5th Cir. 1985)

(excluding expert opinions relying on conduct protected by the *Noerr-Pennington* doctrine); *Malden Transp., Inc. v. Uber Techs. Inc.*, 404 F. Supp. 3d 404, 424 (D. Mass. 2019), *aff'd*, 8 F.4th 1 (1st Cir. 2021) (similar). Dr. Zicherman’s opinions warrant the same treatment. Dr. Zicherman’s failure to piece apart any impact of features that can form the basis for liability from those of protected content or publishing features necessarily means that he has no reliable methodology to opine whether the non-protected features of Meta’s platforms are harmful.

Dr. Zicherman repeatedly relies on third-party content and publishing features to support his opinion that social media causes addiction and other mental health harms. *See, e.g.*, Ex. 96 (Zicherman Rep.) ¶¶ 1-4, 37 (opining that adolescents “seem far more likely [than adults] to be *impacted by risky content* once exposed to it”); *id.* at ¶ 2, (“When children and adolescents use social media, it is as if they are pulling a slot machine lever, with social rewards in the form of *likes, new posts, or targeted content* triggering dopamine releases in the brain.”); *id.* at ¶ 36 (“[C]hildren and adolescents are victims of this endless dopamine feedback cycle, induced by *endless social media feeds*, seeking and anticipating rewards in the way of *photo tagging, likes, and comments.*”); *see also* Ex. 98 (Zicherman Dep.) 289:10-22 (“Q. Can you describe to me a specific patient encounter ... that led you to believe sensitive content viewed on Instagram was causing that teenager mental health harm? ... [A.] It’s a pretty common refrain from patients that tell me they are exposed to *content related to* eating disorders, self-harm, potentially methods of suicide, and ... drug glorification.”). He also fails to distinguish between unprotected features and protected third-party content and publishing features. *See* Ex. 96 (Zicherman Rep.) ¶ 2 (opining that the “variable reward system inherent in social media applications interacts with young users’ undeveloped brains”).

Dr. Zicherman’s clinical experience also does not support the conclusory distinctions he draws between third-party content and the at-issue features. He has admitted that his patients do not share with him the specifics of how they use Meta’s apps—so those conversations provide no foundation for him to opine that his patients were harmed by any specific features of those apps. *See* Ex. 98 (Zicherman Dep.) 300:25–301:1-3 (“[M]ost of the patients that come in and work with me, they don’t really want to share much information about their use of the app and platform...”); *id.* at 301:21-24–302:1-4 (“Q. Have you ever had a teenage patient or their parent tell you ‘Push notifications on Instagram are causing harm and

1 disruption and dysregulation in my life?’ ... [A.] They don’t have to tell me that for me to understand
 2 that it’s harmful but no teens are typically not telling me that the push notification is, you know, harmful.”).
 3 Dr. Zicherman’s conclusory attribution of harm to his patients from features—rather than content (or some
 4 other source altogether)—is not the result of any reliable methodology .

5 **c) Dr. Zicherman’s Clinical Experience Does Not Provide a Reliable**
 6 **Methodology to Support His Population-Level Opinions (Opinion 1-4).**

7 Expert witness testimony must be “based on sufficient facts or data,” and “the product of reliable
 8 principles and methods.” Fed. R. Evid. 702(b)-(c). “[B]oth unsound methods and unjustified
 9 extrapolations from existing data can require exclusion of an expert’s testimony.” *In re Viagra (Sildenafil*
 10 *Citrate) and Cialis (Tadalafil) Prods. Liab. Litig.*, 424 F. Supp. 3d 781, 790 (N.D. Cal. 2020). Dr.
 11 Zicherman’s clinical experience—the entirely anecdotal evidence that undergirds all his opinions—is not
 12 based on a representative sample of adolescents and thus cannot support his broad opinions along a variety
 13 of dimensions. Instead, Dr. Zicherman’s opinions amount to mere speculation—extrapolated without
 14 justification from anecdotes of his small clinical population of patients diagnosed with both addiction and
 15 other mental-health issues, and not supported by a reliable methodology. *See Ollier v. Sweetwater Union*
 16 *High Sch. Dist.*, 768 F.3d 843, 861 (9th Cir. 2014) (“[S]peculative testimony is inherently unreliable[.]”).

17 First, Dr. Zicherman’s opinions about the prevalence and causes of social media addiction in the
 18 general population cannot reliably be based on anecdotal evidence from an unrepresentative population—
 19 certainly not without any justification for making that analytical leap. *See, e.g.*, Ex. 96 (Zicherman Rep.)
 20 ¶¶ 2–4; Ex. 98 (Zicherman Dep.) 263:9-25–264:1. *See also e.g., Allison v. McGhan Med. Corp.*, 184 F.3d
 21 1300, 1314–16 (11th Cir. 1999) (excluding expert relying on anecdotal evidence and making unsupported
 22 analytical leaps); *Casey v. Ohio Med. Prods.*, 877 F. Supp. 1380, 1385 (N.D. Cal. 1995) (“Such case
 23 reports are not reliable scientific evidence of causation” given, among other deficiencies, the lack of a
 24 comparison mechanism). He admits that his clinical population is “a population with a more severe
 25 presentation than likely what we are seeing in the community,” Ex. 98 (Zicherman Dep.) 263:9-24, 266:7-
 26 9, and that he has a “distinct” viewpoint from treating individuals “who meet the very high threshold to
 27 present to a psychiatric treatment clinic” and present potentially the “worst-case trajectory,” Ex. 97
 28 (Zicherman Rebuttal Rep.) ¶ 13. Dr. Zicherman acknowledged that “[i]f [teenagers are] benefitting from

the app, I’m probably not going to see them in clinic,” but admits to relying on that unrepresentative sample to shape his opinions: “I don’t believe I really discussed potential benefits [in the report], as I don’t see those in my clinical practice.” Ex. 98 (Zicherman Dep.) 357:15-25–358:1. Moreover, when pressed to actually perform an extrapolation from his clinical population to a general population of teens in the Bay Area, he could not do so—revealing that his opinions are based on no methodology at all. *Id.* at 266:13-20.

Second, and more fundamentally, Dr. Zicherman’s near total reliance on his clinical experience and unproduced clinical notes render his “method ... a black box into which data is fed at one end and from which an answer emerges at the other, and the jury cannot see how the pieces fit together or how the data drives the conclusion.” *Open Text S.A. v. Box, Inc.*, 2015 WL 349197, at *6 (N.D. Cal. Jan. 23, 2015) (excluding expert). His refusal to produce the clinical notes he relies on leaves Meta, the Court, and the jury unable to assess the basis for his broad claims of social media diagnoses and the effectiveness of Meta’s teen safety tools.⁴³ *See, e.g.*, Ex. 98 (Zicherman Dep.) 122:13-21 (“Q. ... Did you review or rely on any of your clinical notes that you have for every patient when you developed your opinions in this litigation? A. Well I’m always referencing notes. It’s hard to separate that from ... maybe the question you’re asking about providing estimates, again, because I am always reviewing records of my patients.”); *id.* at 124:14-15 (“[I]t’s hard to separate out the clinical notes from recollection[.]”). Absent disclosure of these notes as requested, Dr. Zicherman’s report is deficient. The Court should not permit Dr. Zicherman to shield this data under the cloak of his “clinical experience,” and allow Plaintiffs to subvert their burden

⁴³ Meta repeatedly requested that Dr. Zicherman disclose any notes he relied on when forming his opinions for this case. *See, e.g.*, Ex. 98 (Zicherman Dep.) 126:5-19; 131:1–134:20. He refused, instead using his notes both as a sword and a shield throughout the deposition. *Compare* Ex. 98 (Zicherman Dep.) 139:25–140:2 (“I think it’s fair to say that I have stated in my notes that someone has social media addictions.”) *with* Dep. 257:12-19 (“Q. So if you do eventually produce your clinical notes in this litigation, you would expect for me to see ‘social media addiction’ written all over your clinical notes; is that right? ... [A.] I don’t believe it’s appropriate for me to answer questions about my notes.”). Dr. Zicherman’s refusal to provide Meta with these records—redacted for patient-identifying information—that contributed to his opinions in this case, particularly those concerning his assessment of the prevalence and presentation of social media addiction in his patient population, and the aspects of social media, and specific platforms, his patients find harmful (including related to alleged sleep disruptions, *see* Ex. 96 (Zicherman Rep.) ¶ 3, Ex. 97 (Zicherman Rebuttal Rep.) ¶¶ 5, 25) or ineffective at mitigating such harm warrants exclusion of those opinions.

of demonstrating that their expert’s opinions are supported by a reliable methodology. As the Ninth Circuit recently explained, courts do not blindly defer to “an expert’s mere talismanic invocation of ‘clinical experience’” when assessing whether a causation analysis “passes muster under Rule 702.” *Engilis v. Monsanto Co.*, __ F.4th __, 2025 WL 2315898, at *10 (9th Cir. Aug. 12, 2025). Because Dr. Zicherman relies primarily on his clinical experience for all opinions put forth in his report, the failure to disclose these underlying clinical notes requires exclusion of his opinions.

Dr. Zicherman’s opinions’ unreliability is compounded by his repeated inability to recall details of his clinical experience at his deposition. For example, when asked whether Dr. Zicherman recalled any specific patients he saw the previous week who displayed concerning social media habits, Dr. Zicherman was unable to provide any meaningful level of detail. Ex. 98 (Zicherman Dep.) 111:12-25 (estimating that half of his patients from the prior week had concerning social media habits, but when asked to recall any specific patient with such habits, unable to recall without “jog[ging] [his] memory” by “look[ing] at [his] actual clinic template”); *id.* at 112:1-8 (“Q. So you can’t recall off the top of your head the specific nature of your work with patients just last week? ... [A.] I would have to jog my memory and look at my actual workflow from the previous week.”). Dr. Zicherman says that his clinical experience justifies his opinions, but that he cannot recall his clinical experience without consulting his notes. At the same time, however, Dr. Zicherman refuses to let Meta consult those notes. Certainly, Plaintiffs cannot bear their burden to prove the existence of a reliable methodology underlying such an untestable, black-box opinion.

d) Dr. Zicherman’s Concessions Reveal that He Is Not Qualified to Opine on Any Alleged Connection Between Dopamine Activity and Social Media Use (Opinions 2-4).

Despite Dr. Zicherman’s dopamine-release theory being his “primary mechanism” to establish the role of Instagram in causing mental health harms, Ex. 98 (Zicherman Dep.) 340:7-8; *see also* Ex. 96 (Zicherman Rep.) ¶¶ 2, 4, 36, 57, 58, he was unable to explain how dopamine releases in the brain are measured, directing counsel to ask a neuroscientist (which Dr. Zicherman is not), Ex. 98 (Zicherman Dep.) 116:9-23, 117:3-4, 116:17-23. Dr. Zicherman’s opinions about dopamine should therefore be excluded. *See, e.g., In re Roundup Prods. Liab. Litig.*, 737 F. Supp. 3d at 897–98 (finding toxicologist who primarily works with in vitro animal cells unqualified to opine on human lymphoma, in part because he admitted he

1 would have to consult with doctor to answer questions about human lymphoma).

2 When questioned about dopamine in his deposition, Dr. Zicherman repeatedly suggested that
3 counsel “reference someone who has a PhD in neuroscience.” Ex. 98 (Zicherman Dep.) 116:17-23. And
4 when asked if social media use drives stronger dopamine responses than other social activities, Dr.
5 Zicherman emphasized that “measurement of dopamine” is “outside [his] scope of practice.” *Id.* at 346:2-
6 21. Further, Dr. Zicherman relied on a study measuring dopamine levels in the blood to support his
7 opinion on the relationship between dopamine releases in the brain and addiction without providing any
8 support for the logical leap that dopamine levels *outside* the brain are related to dopamine releases *inside*
9 the brain. *Id.* at 330:6–332:21, 333:9-25–334:1-11. Concerningly, he could not even say whether
10 dopamine readily crosses the blood-brain barrier. *Id.* Dr. Zicherman’s utter lack of understanding about
11 whether the study he cited can be appropriately extrapolated to support his opinion underscores the
12 unreliability of his dopamine-release theory. Any of his opinion relying on this theory must be excluded.

13 **V. CONCLUSION**

14 For the reasons set forth herein and in the Omnibus Section 230 *Daubert* Motion, Defendants
15 respectfully request that the Court exclude the testimony of Plaintiffs’ general causation experts.
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1 DATED: September 30, 2025

Respectfully submitted,

3 By: /s/ Ashley M. Simonsen

4
5 Ashley M. Simonsen (Bar No. 275203)
6 **COVINGTON & BURLING LLP**
7 1999 Avenue of the Stars
8 Los Angeles, California 90067
9 Telephone: (424) 332-4800
10 Facsimile: (424) 332-4749
11 Email: asimonsen@cov.com

9 Phyllis A. Jones (*pro hac vice*)
10 Paul W. Schmidt (*pro hac vice*)
11 Christian J. Pistilli (*pro hac vice*)
12 **COVINGTON & BURLING LLP**
13 One City Center
14 850 Tenth Street, NW
15 Washington, DC 20001-4956
16 Telephone: (202) 662-6000
17 Facsimile: (202) 662-6291
18 Email: pajones@cov.com
19 Email: pschmidt@cov.com
20 Email: cpistilli@cov.com

21 *Attorneys for Defendants Meta Platforms, Inc.*
22 *f/k/a Facebook, Inc.; Facebook Holdings,*
23 *LLC; Facebook Operations, LLC; Meta*
24 *Payments Inc. f/k/a Facebook Payments Inc.;*
25 *Meta Platforms Technologies, LLC f/k/a*
26 *Facebook Technologies, LLC; Instagram,*
27 *LLC; and Siculus LLC f/k/a Siculus, Inc.*
28

MUNGER, TOLLES & OLSON LLP

By: /s/ Jonathan H. Blavin
Jonathan H. Blavin

JONATHAN H. BLAVIN, SBN
230269
jonathan.blavin@mto.com
MUNGER, TOLLES & OLSON LLP
560 Mission Street, 27th Floor
San Francisco, CA 94105
Tel.: (415) 512-4000

ROSE L. EHLER, SBN 296523
Rose.Ehler@mto.com
MUNGER, TOLLES & OLSON LLP
350 South Grand Avenue, 50th Floor
Los Angeles, CA 90071
Tel.: (213) 683-9100

Attorneys for Defendant Snap Inc.

KIRKLAND & ELLIS LLP

By: /s/ Allison Brown
Allison Brown

ALLISON BROWN, *pro hac vice*
KIRKLAND & ELLIS LLP
601 Lexington Avenue
New York, NY 10022
Telephone: (212) 446-4757
Email: Alli.Brown@kirkland.com

JESSICA DAVIDSON, *pro hac vice*
KIRKLAND & ELLIS LLP
601 Lexington Avenue
New York, NY 10022
Telephone: (212) 446-4723
Email:
Jessica.davidson@kirkland.com

Attorneys for Defendant Snap Inc.

WILSON SONSINI GOODRICH & ROSATI
Professional Corporation

By: /s/ Brian M. Willen
Brian M. Willen

Brian M. Willen (pro hac vice)
Wilson Sonsini Goodrich & Rosati PC
1301 Avenue of the Americas, 40th Floor
New York, New York 10019
Telephone: (212) 999-5800
Facsimile: (212) 999-5899
bwillen@wsgr.com

Lauren Gallo White (SBN 309075)
Samantha A. Machock (SBN 298852)
Wilson Sonsini Goodrich & Rosati PC
One Market Plaza, Spear Tower, Suite 3300
San Francisco, CA 94105
Telephone: (415) 947-2000
Facsimile: (947)-2099
lwhite@wsgr.com
smachock@wsgr.com

Christopher Chiou (SBN 233587)
Matthew K. Donohue (SBN 302144)
Wilson Sonsini Goodrich & Rosati PC
953 East Third Street, Suite 100
Los Angeles, CA 90013
Telephone: (323) 210-2900
Facsimile: (866) 974-7329
cchio@wsgr.com
mdonohue@wsgr.com

*Attorneys for Defendants YouTube, LLC and
Google LLC*

MORGAN LEWIS & BOCKIUS LLP

By: /s/ Brian M. Ercole

Brian Ercole (pro hac vice)
600 Brickell Avenue, Suite 1600
Miami, FL 33131-3075
Telephone: (305) 415-3416
brian.ercole@morganlewis.com

Yardena R. Zwang-Weissman (SBN
247111)
300 South Grand Avenue, 22nd Floor
Los Angeles, CA 90071-3132
Telephone: (213) 612-7238
yardena.zwang-
weissman@morganlewis.com

Stephanie Schuster (pro hac vice)
1111 Pennsylvania Avenue NW
Washington, DC 20004-2541
Telephone: (202) 373-6595
stephanie.schuster@morganlewis.com

*Attorneys for Defendants YouTube, LLC
and
Google LLC*

WILLIAMS & CONNOLLY LLP

By: /s/ Joseph G. Petrosinelli

Joseph G. Petrosinelli

JOSEPH G. PETROSINELLI (pro hac vice)
ASHLEY W. HARDIN (pro hac vice)
680 Maine Avenue, SW
Washington, DC 20024
Tel.: 202-434-5000
jpetrosinelli@wc.com
ahardin@wc.com

*Attorneys for Defendants YouTube, LLC
and Google LLC*

1 Dated: September 30, 2025

KING & SPALDING LLP

2
3 By: /s/ Geoffrey M. Drake

4 GEOFFREY M. DRAKE, *pro hac vice*

5 gdrake@kslaw.com

TACARA D. HARRIS, *pro hac vice*

6 tharris@kslaw.com

KING & SPALDING LLP

1180 Peachtree Street, NE, Suite 1600

7 Atlanta, GA 30309

Telephone: (404) 572-4600

8 Facsimile: (404) 572-5100

9 DAVID P. MATTERN, *pro hac vice*

dmattern@kslaw.com

KING & SPALDING LLP

10 1700 Pennsylvania Avenue, NW

Suite 900

11 Washington, D.C. 20006

12 Telephone: (202) 737-0500

Facsimile: (202) 626-3737

13 BAILEY J. LANGNER (SBN 307753)

14 blangner@kslaw.com

KING & SPALDING LLP

15 50 California Street, Suite 3300

San Francisco, CA 94111

16 Telephone: (415) 318-1200

Facsimile: (415) 318-1300

17 *Attorneys for Defendants*

18 *TikTok Inc., ByteDance Inc., TikTok Ltd.,*

19 *ByteDance Ltd., and TikTok LLC*

FILER'S ATTESTATION

I, Ashley M. Simonsen, hereby attest, pursuant to N.D. Cal. Civil L.R. 5-1, that the concurrence to the filing of this document has been obtained from each signatory hereto.

DATED: September 30, 2025

By: /s/ Ashley M. Simonsen